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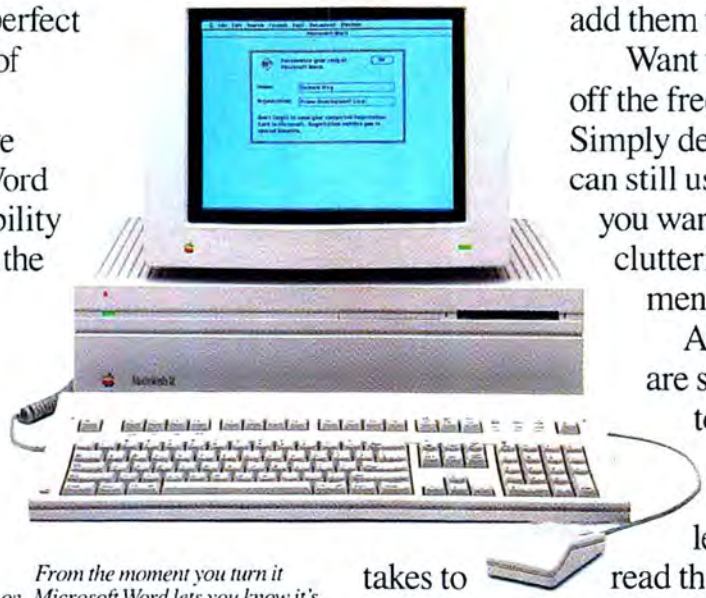
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Your passport to

We have yet to meet the word processor that's perfect for everyone right out of the box.

Which is why we've built into Microsoft. Word version 3 the unique ability to be customized to fit the way you work.

From modifying menus to filing away frequently used formats to designing your own dictionary, Word gives you more ways to turn our word processor into your word processor.



From the moment you turn it on, Microsoft Word lets you know it's yours and yours alone.

Don't like what's on the menu? Change it.

Menus should list the fonts and formats you use all the time. Not the ones you hardly ever use.

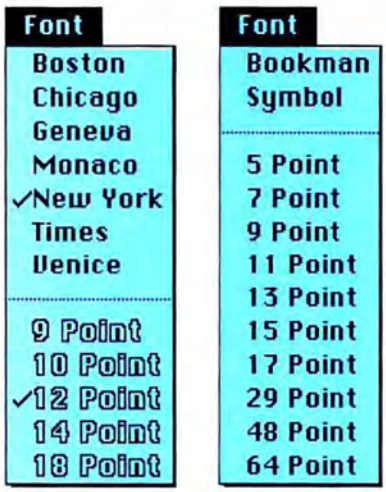
So you'll appreciate how easy it is in Word to add the formats you want. And remove the ones you don't.

Want quick access to your LaserWriter. fonts, paragraph borders, or some other favorite format? Just add them to your menus.

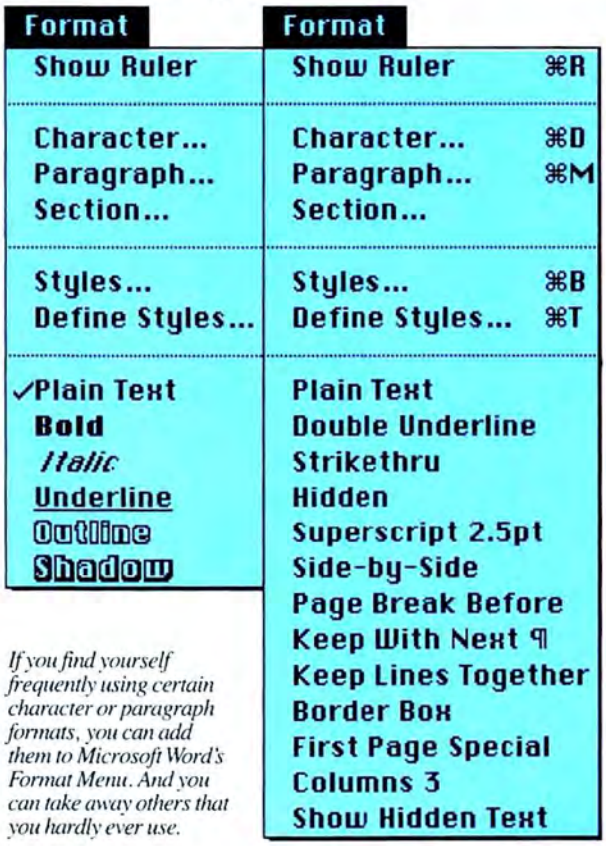
Want to take Monaco off the frequent font list? Simply delete it. You can still use it whenever you want to; it's just not cluttering up your menu.

And Word's menus are so easy to customize, you can make a change in less time than it takes to read this sentence.

You might say they're your passport to easier writing.

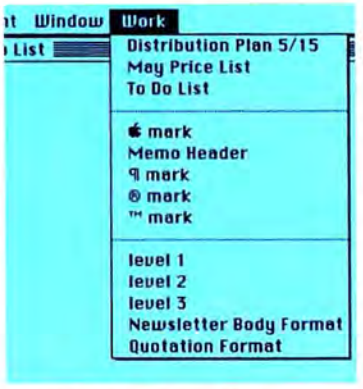


Microsoft Word makes it easy to create custom menus that list as many fonts as you want to work with.



If you find yourself frequently using certain character or paragraph formats, you can add them to Microsoft Word's Format Menu. And you can take away others that you hardly ever use.

o better writing.



Word is the only word processor for the Macintosh® that lets you create your own menu. List your most frequently used filenames, glossaries, and styles on a Work Menu where you can get to them quickly.

Add a menu. Subtract steps.

Microsoft Word lets you add a special menu that saves so much work it's called the Work Menu.

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That's because the Work Menu saves steps by putting your favorite formats, boilerplate text entries, and even document names a quick mouse click away.

More changes for the better.

There are lots of other ways you can make Word yours and yours alone.

Create your own custom styles – like that tricky boxed paragraph with the 13-point line spacing, tight letterspacing, and boldfaced, italicized text. And re-use it instantly for consistency in one document or across several.

You can also have your own glossary for storing text that you'd rather not retype every time you need it. Part 1(b) of the standard agreement, for instance.

And, of course, you can even customize Word's 80,000-word dictionary by adding your own unique terms.

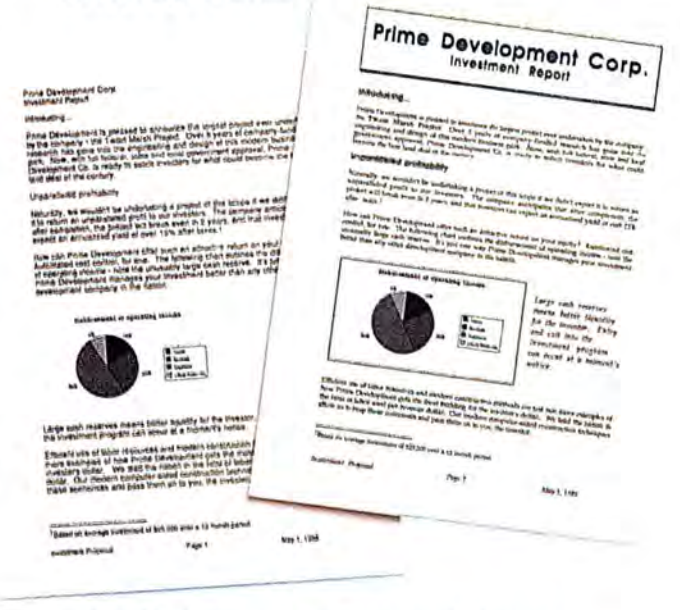
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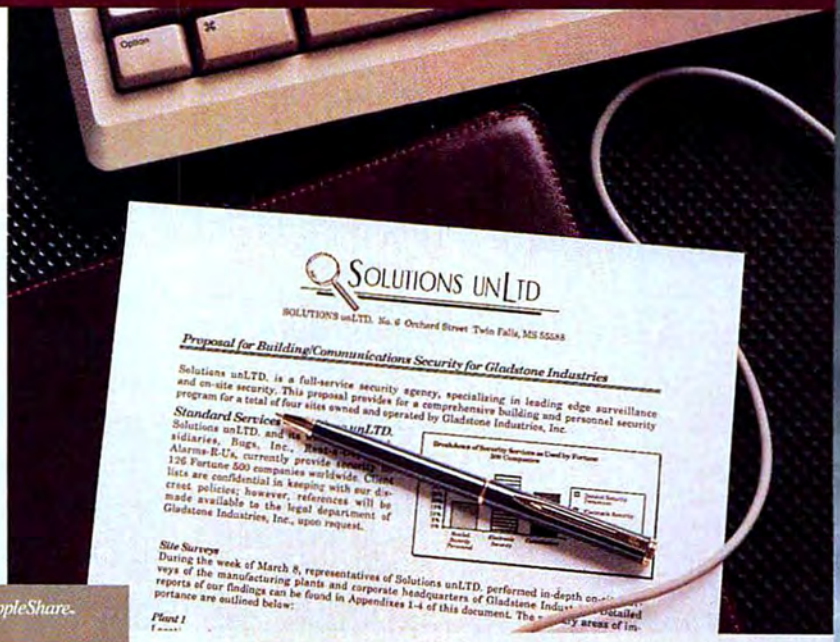
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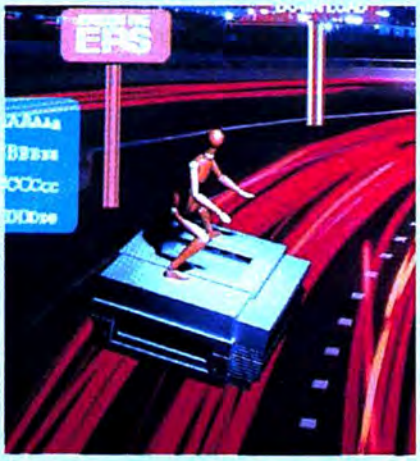


Version 3 now supports AppleShare® and the Macintosh II.

Microsoft

MacUser CONT





PostScript Programming Tools, page 158

DESKTOP PUBLISHING

Publish or Perish

by Ezra Shapiro

Get the right tool for the job! We take a look at the state of the desktop (publishing, that is) and offer some tips on what you'll need to get the job done right. **149**

You Gotta Have Art

by Sharon Zardetto Aker

The Mac wasn't meant for text alone. Check out this roundup of EPS clip-art collections to see what else is available. **180**

PS I ♥ You

by Gregory Wasson

Adrift in the never-never land of PostScript programming? Take heart! *PostHaste, Postility,* and *Lasertalk,* three new PostScript utilities, are here to keep you on the right course. **158**

All in a DA's Work

by Carlos Domingo Martinez

Does it sometimes seem as if you need a third hand for your DTP project? One or more of these text and graphic DAs should be just the ticket. **194**

New Age Page

by Robert Wiggins

PageMaker is still the standard in page layout, and version 3.0 is the best so far. It's not perfect, but with an improved interface, style sheets, spot color support, and automatic text wrap, Aldus has taken a big step forward. **208**

The Second Ragtime Around

by Vickie Limparis

Ragtime may not be number one with a bullet, but version 2.0 of this integrated page processor is a powerful tool that's even better than its previous incarnation. **222**



PostScript Clip Art, page 180

MACUSER LABS

Black & White & Read All Over

by Phillip Robinson and the MacUser Labs Staff

If you've outgrown your Mac's small screen, it's time to think big. MacUser Labs reports on the latest and biggest monochrome monitors, with all the information you need to choose the one that's best for you. **102**





MacUser Labs Tests Monitors, page 102

HYPERCARD

Card Tricks

by Michael Swaine

Debugging your scripts can be as simple as having the proper profile. Here's a script to monitor your scripts. **253**

Flash Cards

by Laura Johnson and Victoria Juarez

The stacks keep rolling in! Here're our picks from this month's batch. **260**

E N T S

August 1988
Volume 4 Number 8

COLUMNS

Editor's Desktop
by Frederic E. Davis
The three most significant developments in the 20th century (since sliced bread) are DTP, DTP, and DTP. **11**

The Open Window
by Steven Bobker
Computer viruses — terrorism for the rest of us. What should we do about it? **33**

The Macintosh Community
by Neil L. Shapiro
In its infancy, the Mac community was share and share alike. In its adolescence, it reflected the "me culture." And now, in its maturity, surprise — sharing is in again! **41**

Pinstripe Mac
by Robert R. Wiggins
The Mac is a G.O.D. (Guardians of Data)-less culture. The burden is on the user, so don't put yourself — and your data — at risk. **69**



The Evils of Mac Viruses, page 33



How Sacrosanct Is the Interface? page 77

Mainstream Mac
by Jim Seymour
Who says the Mac interface was written on stone? Good interfaces evolve over time, so let the vendors stretch the concept. **77**

The Help Folder
by Chris Espinosa
"Why do my files copied from a floppy take up more memory on my hard disk?" "Can the SE's 20-megabyte internal hard disk be used as an external hard disk with a Mac Plus?" Answers to these queries and many more straight from the Mac team. **241**

The Devil's Advocate
by John C. Dvorak
Software and snake oil — the fine art of marketing. **310**

DEPARTMENTS

Letters
from the Mac community
Readers have their say. **19**

New on the Menu
edited by Louise Kohl
The newest products, latest updates, News Line, and more (but how much more do you really need?). **44**

Quick Clicks
edited by Ben Templin
FreeHand, Reports, LapLink Mac, Microtemp Financial Calculators, MacSQZ!, MapMaker VideoWorks II Clip Animation, Beyond Dark Castle. **83**

Tip Sheet
compiled by Kristi Coale and Russell Ito
Mac hints, tips, and short cuts. **247**

MiniFinders
Hundreds of capsule reviews to help you pick and choose. **266**

Coming Soon 6

Advertiser Index 292

COVER

photo by Mel Lindstrom



MacUser

HOW TO REACH US

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MacUser is always looking for new and unusual products for our New on the Menu, News Line!, Quick Clicks, and Scrapbook sections, as well as for feature coverage, but even with our ears to the ground and our eyes straight ahead, we can't catch it all. (Heck, it's hard enough just moving in that position.) That's why we need your help. If you've got a product that you'd like to tell us about whether it's new or an upgrade — send your letters and/or press releases to: Chip Carman, Technical Director, **MacUser Magazine,** 950 Tower Lane, 18th floor, Foster City, CA 94404.

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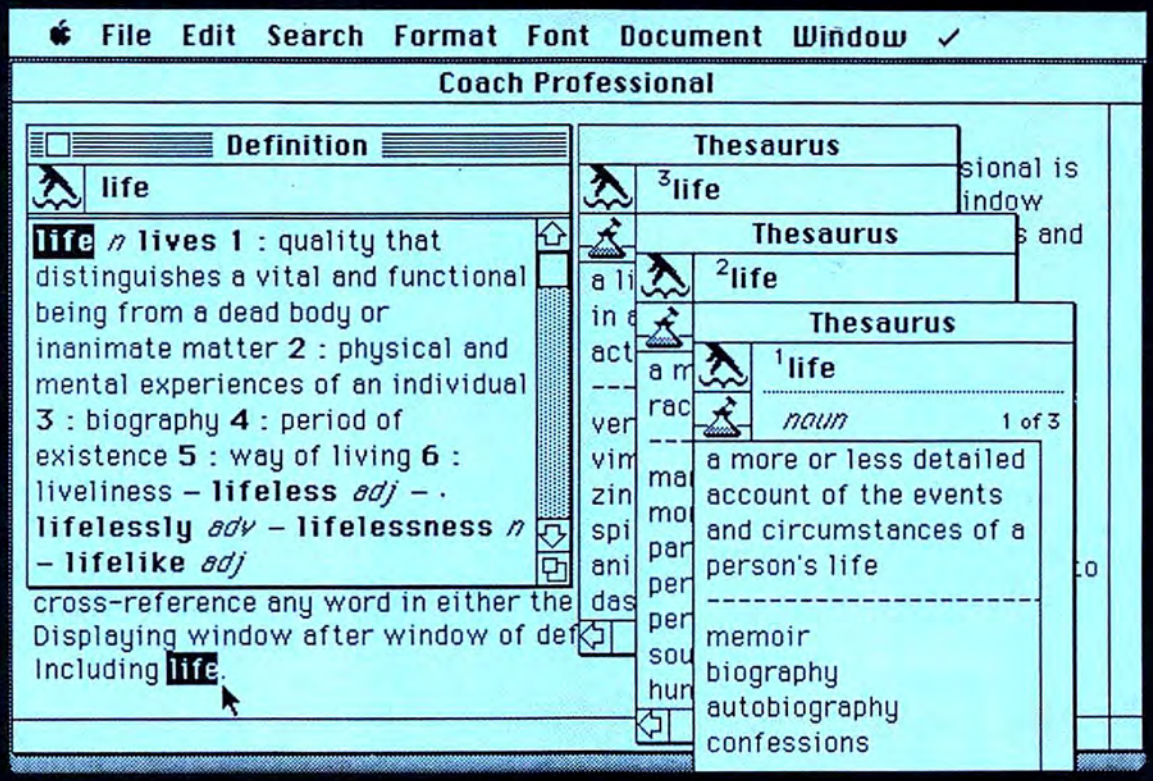
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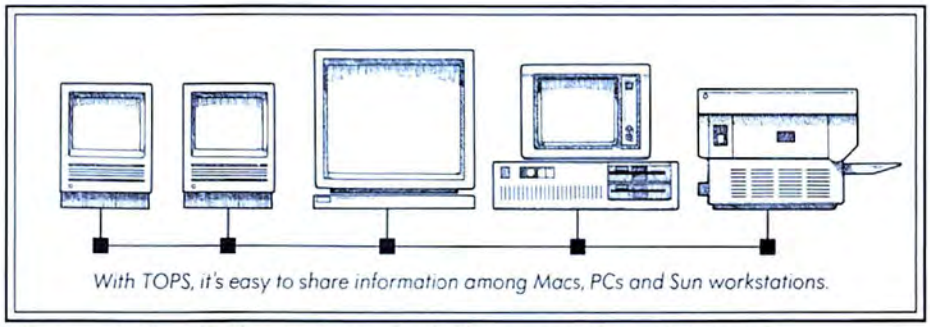
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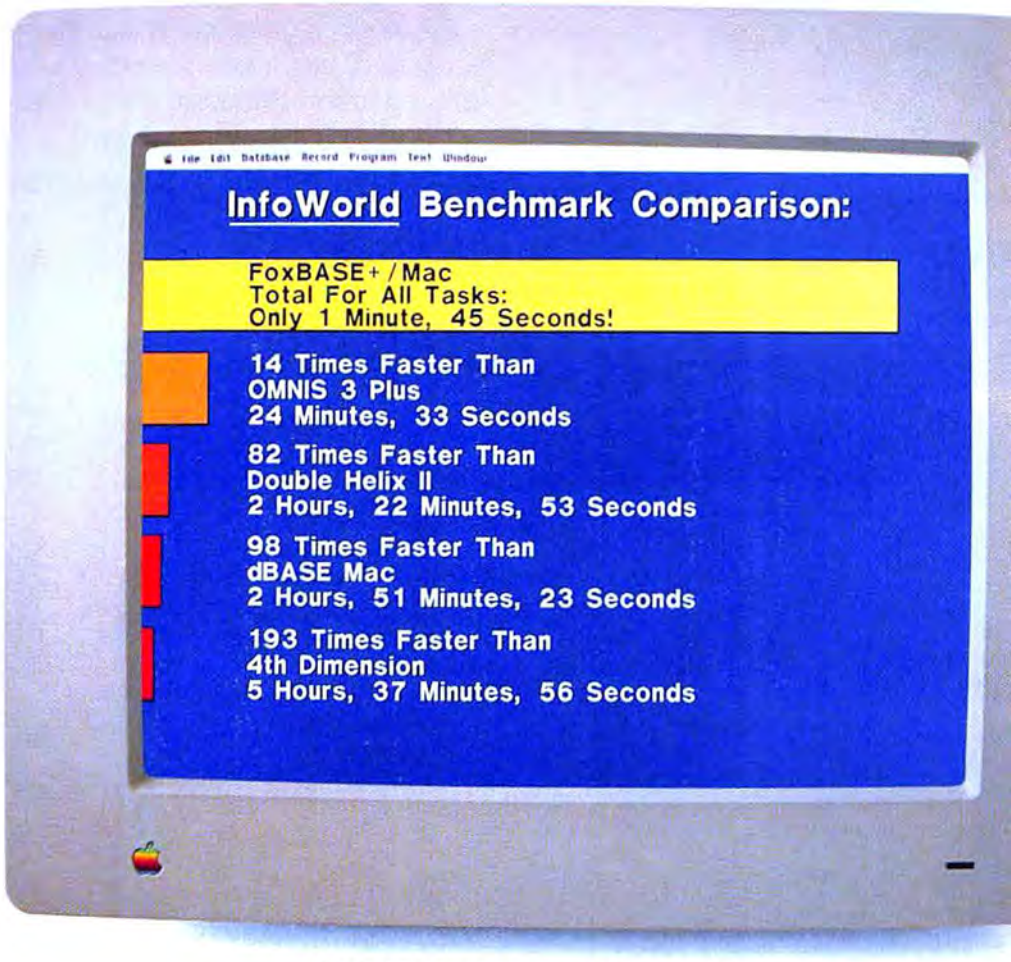
The View Window is the master control panel for FoxBASE+/Mac's graphical, non-programming interface. Use it to open and close files, set up indexes, establish relations, access BROWSE, and even to modify database structures!

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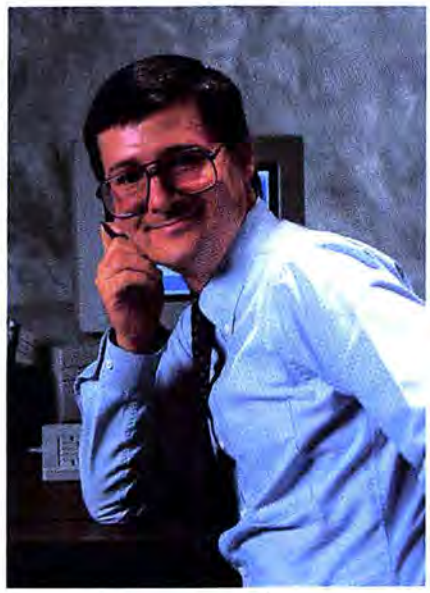
Gutenberg's Desktop

Freedom of the press, so the saying goes, is guaranteed only to those who own one. This somewhat cynical remark was made twenty years ago, when publishing technology was very expensive — typically several hundred thousand dollars for a good electronic typesetting and layout system. But the advent of desktop publishing has changed all that. Now anyone with a Macintosh has freedom of the press in the fullest sense.

Desktop publishing has gotten a lot of media and marketing attention, and although I dislike overblown hype as much as anyone, I think desktop publishing is one of those rare phenomena that actually deserves all the attention it gets. In fact, I'd go so far as to say that desktop publishing is the most valuable contribution that the microcomputer has made to date. Desktop publishing's influence extends far beyond the publishing industry: It also has a substantial impact on general business correspondence and other written communications. Many more people now have access to publishing technology, and the graphic communications arts are flourishing as never before.

POWER TO PUBLISH

Not since Benjamin Franklin's day have individuals had such power to be their own authors, typesetters, and publishers. Small publishing houses are springing up all over the country, producing a rich and diverse offering of publications with the Macintosh. Many of these are culturally significant publications that would never have seen the light of day if it weren't for the incredible cost savings possible with desktop publishing. The Macintosh and the LaserWriter ignited the desktop publishing revolution — a revolution that established the Macintosh



as the leading personal computer technology.

MORE THAN JUST MEMOS

Desktop publishing is a lot more than just pretty memos and newsletters. It affects broad segments of our culture in ways that might not be immediately obvious. One example is the important role desktop publishing plays in disseminating scientific information. Most academic, technical, and scientific publishers operate on tight budgets. This often means these publishers have to turn down worthwhile manuscripts because of limited resources. The cost savings and efficiencies of desktop publishing, however, enable them to publish more books and papers in a timelier fashion than was possible with traditional publishing methods. This, in turn, helps put the most current scientific information in the hands of more people.

Desktop publishing benefits literature as well as science. Writers have more options for publishing their poetry, short stories, plays, novels, or whatever. As more small publishing houses undergo revivals because of desktop publishing, not only can more aspiring writers get published, but now writers can also consider self-publishing without having to hand over their life savings to a vanity press. Even though this state of affairs might lead to a lot of junk being published, some real gems will be found among the rubbish.

WHAT IS DESKTOP PUBLISHING?

With all the hoopla about desktop publishing, it would be appropriate to explore what the term actually means. Let's start with the word *publishing*. The dictionary defines it as "... the distribution of printed materials," but that's too limited a definition. The publishing process also encompasses areas such as art, language, research, distribution, marketing, and finance. A more modern definition of publishing might be "the technology of written communication." In that context, desktop publishing is the latest step in the evolution of publishing, ranking in significance with such milestones as Gutenberg's press, the original Linotype machine, and the invention of photography.

MACINTOSH DTP

Desktop publishing on the Macintosh is usually understood as the use of a Mac, of writing and graphics software, and of page-layout software to produce written or printed materials. However, desktop publishing can also involve many other Macintosh applications, including data communications, databases, and number-processing software. The Mac can help you plan and track your publishing projects, obtain research and information from on-line news and information services, outline your ideas, write and format documents, create and incorporate graphics, prepare camera-

ready copy for printing, keep databases of mailing and subscription lists, create advertising fliers and brochures, and keep all the financial records relating to your publishing endeavor. In terms of hardware, a basic desktop publishing system consists of a Macintosh and a page printer, such as a laser printer, or a typesetting machine. You can own all the elements of such a system, or you can own only a Mac and take your formatted files to a service bureau that will turn your files into typeset pages. Either way, anyone with a Mac is potentially a desktop publisher.

JUST THE BEGINNING

Don't be fooled into thinking that desktop publishing is a passing craze. The market for desktop publishing is enormous and is only just beginning to be tapped by the personal computer industry. Desktop publishing will continue growing by leaps and bounds as it further encroaches on the domain of traditional publishers. Publishing is an extremely large industry, and over the long term desktop publishing is likely to become the dominant technology. People in the personal computer industry often underestimate the importance of desktop publishing, in part because they forget that the publishing industry is much larger than the personal computer industry.

> Desktop publishing will continue to grow by leaps and bounds as it further encroaches on the domain of traditional publishers.

Publishing (which includes printing) is the largest U.S. manufacturing industry. It is first in the number of total business entities, and it represents almost $100 billion dollars of business each year — roughly three percent of the nation's gross national product. The government estimates that the country supports more than 50,000 publishing and printing businesses, ranging from Fortune 1000 companies to small mom-and-pop operations. However, most publishing companies are small; about 80 percent of publishing businesses have fewer than 20 employees.

Because of the size and importance of the publishing and printing industry in the United States, it's easy to see why desktop publishing has become such an important and far-reaching

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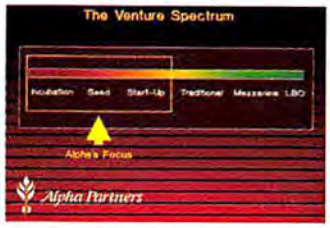
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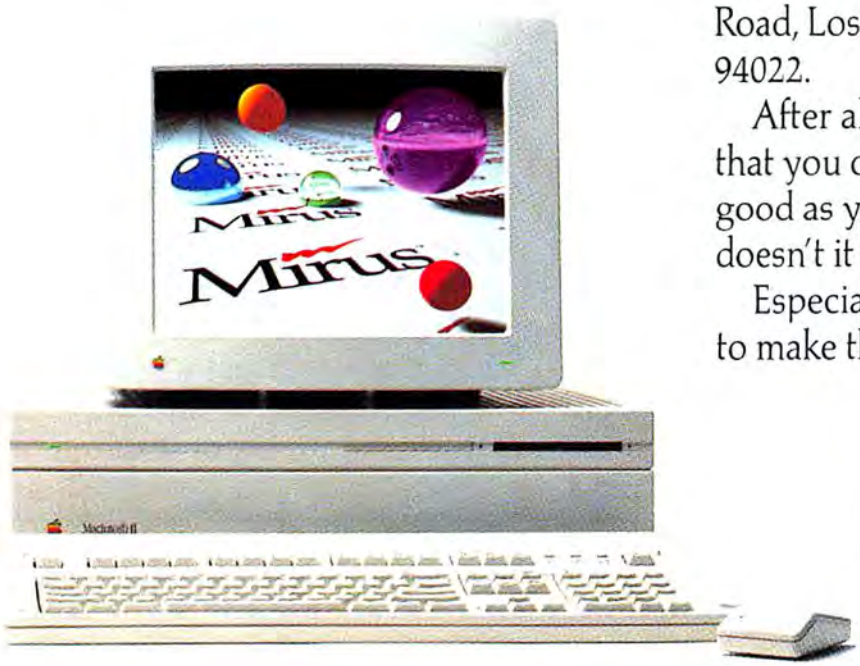
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technology. And keep in mind that these figures represent traditional publishing only; desktop publishing also has a role in helping shape the written communications of virtually any business, educational organization, or government entity. Desktop publishing already accounts for over $1 billion in annual sales, and Dataquest projects that it will grow to $5 billion a year within two years. If these figures are borne out, the real boom years of desktop publishing are still ahead.

SO WHAT ARE WE DOING ABOUT IT?

We've established that desktop publishing is of tremendous importance. And the Macintosh and desktop publishing go hand-in-hand. Therefore, we've decided to do something about it and make a major commitment to covering desktop publishing in *MacUser*. In next month's issue, we're starting a special monthly section devoted to desktop publishing. Although various items of interest to desktop publishers will appear throughout the magazine, this monthly section will provide you with ongoing information about the tools of Macintosh desktop publishing. We'll be getting the top desktop publishing experts to give you the latest insights into the rapidly evolving universe of desktop publishing software and hardware for the Macintosh. And we'll be paying special attention to the use of the Mac II in desktop publishing, since it opens up new horizons with color graphics and workstation publishing software. I hope you enjoy our new desktop publishing section and find it a helpful addition to the magazine.

We've decided to do something about it and make a major commitment to covering desktop publishing in *MacUser*.

If you have any comments, suggestions, or ideas for things to cover in the desktop publishing section, let me know. You can write to me here at *MacUser*, 950 Tower Lane, 18th floor, Foster City, CA 94404.



FREDERIC E. DAVIS/**EDITOR-IN-CHIEF**

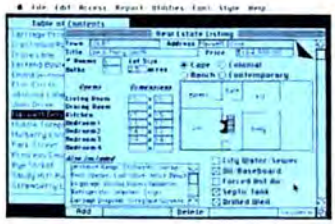
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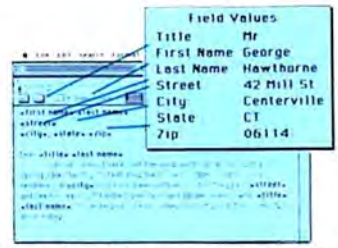
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Letters

The gauntlet has been flung! Jim Williams of Lompoc, CA, informs us of the high Crystal Quest *score of his friend Eric "The Red" Hart: 10,577,550. The score was made on a Mac 512 (sans the sound file). We're impressed and have added an extra hour to our daily quest for higher scores. If you can top Eric's score (on the original, unedited version of the game), send us a screen dump of your score. We're hoping to make* Crystal Quest *an event in the '92 Olympics.*

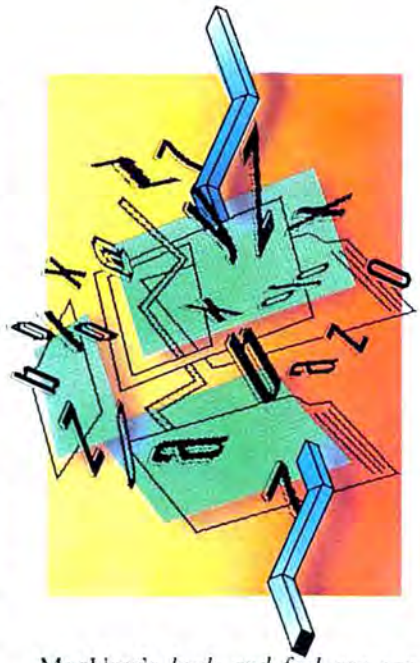
We're always happy to hear from our readers on issues of interest to the Macintosh community. Send your comments to Letters to the Editor, MacUser, *950 Tower Lane, 18th floor, Foster City, CA 94404. All letters become the property of* MacUser, *and we reserve the right to edit any letters we print.*

DESIGNS OF THE TIMES

I've been an avid *MacUser* reader since it first came out. I've always appreciated the special qualities of your publication and have always looked forward to reading what your various editors had to say. In fact, I've come to develop the same affection for them as I used to have for the "usual gang of idiots" who produced *Mad* magazine. That sort of loyalty to a magazine doesn't come easy with me.

When I received my May *MacUser*, not only had you switched editors-in-chief without mentioning it but you'd switched your layout, too. I thought to myself: What's next — picturing your editors in cute little Mac windows with scroll bars? In an age when Apple seems to care more about lawsuits and corporate clients than the individual users who made it what it is, it upsets me to see your publication doing the same thing.

RICHARD S. SMITH
REDONDO BEACH, CA



MacUser*'s look and feel are constantly evolving to help us find new ways to convey the growing volume of information about the Mac. We think our new look will grow on you. Steven Bobker will continue to share his insights and speculations in his monthly "The Open Window" column, drawing on his findings in his new capacity as* MacUser*'s chief scientist. Fred Davis joins the "gang of idiots" (we're flattered by the comparison) as editor-in-chief, having served in that capacity for our award-winning sister publication,* A+. — LK

CASSETTES FAST FOR WORD

Your low rating (3½ mice) and perverse review of *LearnWord* 3.0 training tapes from Personal Training Systems (April '88) was a disservice to your readers. Cassette training with teaching disks is not low tech — it's proven tech. When manuals and random experimentation fail to instruct, these nonthreatening software tutorials can get the job done.

DON W. RADA
LITTLE CANADA, MN

A 3½-mouse rating is actually a better-than-average mark. And if Personal Training Systems paid as much attention to style as it does to content, it'd get an even higher rating. — BT

THE WRITE STUFF

I feel that Russ Ito did a rather unfair hatchet job on *Microsoft Write* in your May '88 issue. Mr. Ito states that *Write* "doesn't do anything *Word* 3.01 can't do better." This overlooks the fact that a few of the nasty peculiarities in *Word* have been fixed in *Write;* for example, the Reduce/Enlarge option in *Write* was returned to the Page Setup menu where it belongs, not the Print menu. Working in a student lab, we often have résumés that have one or two lines that spill over onto a second page. Page reduction allows you to print such a file easily on one page. Forget trying this with *Word*; all it does is shrink what's on each page while not changing the page breaks. Microsoft also fixed the annoying Plain Text bug so that it doesn't change all fonts back to the default Geneva, and it also used the traditional Font menu, which I suspect most people prefer, especially the font lovers out there.

DAVID METHVEN
ATLANTA, GA

Russ Ito may have been too kind. Unfortunately, I purchased *Write* before reading his review. *Write* is right now (hmm . . . maybe *that*'s what I should have bought) out in my car, which I have left unlocked in hopes that someone will steal the software so I have an excuse to go buy *Word.*

W. SANFORD MAY
DALLAS, TX

A true story: A couple of seasons back, when the New Orleans Saints' record earned the team the nickname of The Ain'ts, one fan was so disgusted

DIDIER CREMIEUX

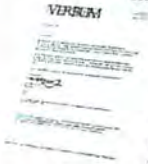
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Letters

that he left his season tickets on the dashboard of his unlocked car. When he came back, he found two sets of season tickets. There's apparently a similar vandal in L.A. who breaks into cars that have those annoying window-sticking Garfield dolls and leaves a second one behind. The moral is: Whatever you do, don't leave your car unlocked — you could end up with a Write *brother.* — JZ

ICONOCLAST

This disturbing *MacDraw* icon suddenly appeared on my Mac SE. I have not dared to open the application and immediately removed it from my hard disk. Is there any imminent danger?

RAMON PEREZ GATELL
ISLA VERDE, PUERTO RICO



Claris is baffled by this understandably scary icon, as are we. Perhaps it's a virus with a bizarre sense of humor. If anyone else has had the same experience (with MacDraw *or another application), let us know.* — JZ

QUIET ON THE TYPESET

Fred Davis' comments on the difference between *typeface* and *font* ("About Face," April '88) were appreciated and should be read by all Mac users. I find myself editing the word *font* out of my spoken language altogether, for the sake of those people who are neither Mac users nor typesetters.

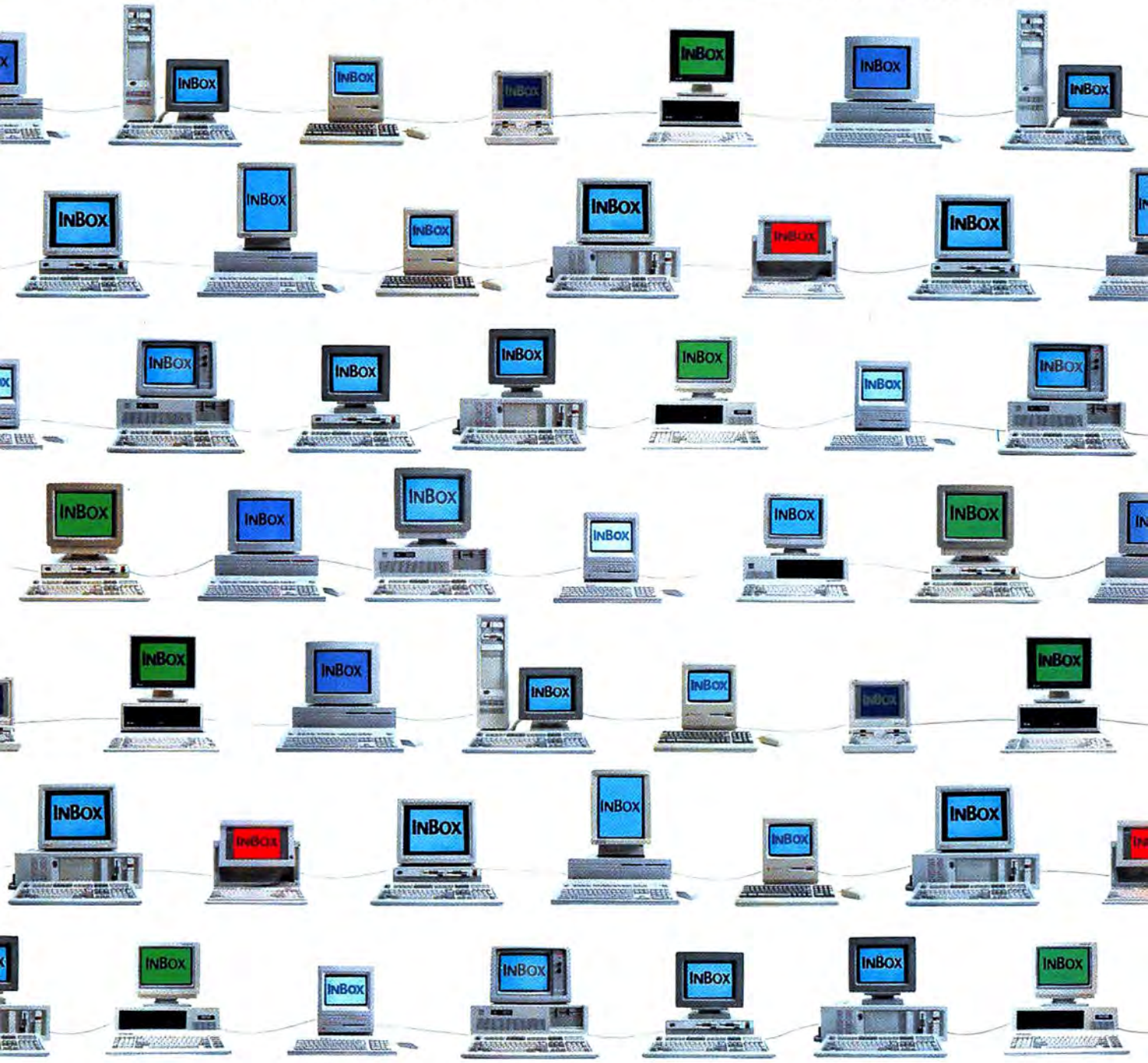
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APRIL FULL

I read with interest Bart Zantzinger's letter about *FullWrite Professional*. It sounded as if his software was totally unrelated to that which I received. Although I agree that having to wait so long for software I had already purchased was frustrating, I have to thank the people at Ann Arbor Softworks for at least keeping me informed of their progress (or lack thereof). Other companies let you sit totally in the dark.

I've been using *FullWrite* as my sole

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Letters

word processor since the day I received it and have been extremely happy with its intermixed graphics, page formatting, spelling, hyphenation, and multitude of other features. And I have never been able to break it (something that many commercial programs cannot brag about, let alone prereleases).

I will always be willing to support people who take the time to get things right, regardless of the delays needed to do it.

MICHAEL J. MCBRIDE
ANCHORAGE, AK

Ashton-Tate (the new owner of Ann Arbor Softworks) shipped the first postrelease version of FullWrite Professional *on April 27, marking the end of an era in Macintosh history.* — JZ

MORE THAN MEETS THE I-BUG

The International Blind Users Group (I-BUG) has received inquiries from blind and visually impaired Mac users requesting information about programs that they can use on the Mac. Apple Computer has generously donated several Macs and other hardware to I-BUG, and we're looking for any commercial or public-domain software for visually impaired Mac users. You can reach I-BUG at P.O. Box 1352, Roseville, CA 95661-1352; (916) 783-0364 (voice after 7 P.M. Pacific Time) or (916) 786-3923 (modem). Thanks for helping us help others.

OTTO C. HAIUNGS
ROSEVILLE, CA

One anxiously awaited software utility for the visually impaired is outSPOKEN, *from Berkeley System Design, publisher of the* inLARGE *screen-magnifying software. It transforms the visual Mac interface into an audible one, and it should be available this summer.* — JZ

GRAND DISILLUSION

I updated to the new versions of *MacPaint* and *MacWrite* as soon they became available, eagerly awaiting the face-lifts of these two old friends. Unfortunately, it seems these new versions have a kind of built-in obsolescence. The "improvements" in the

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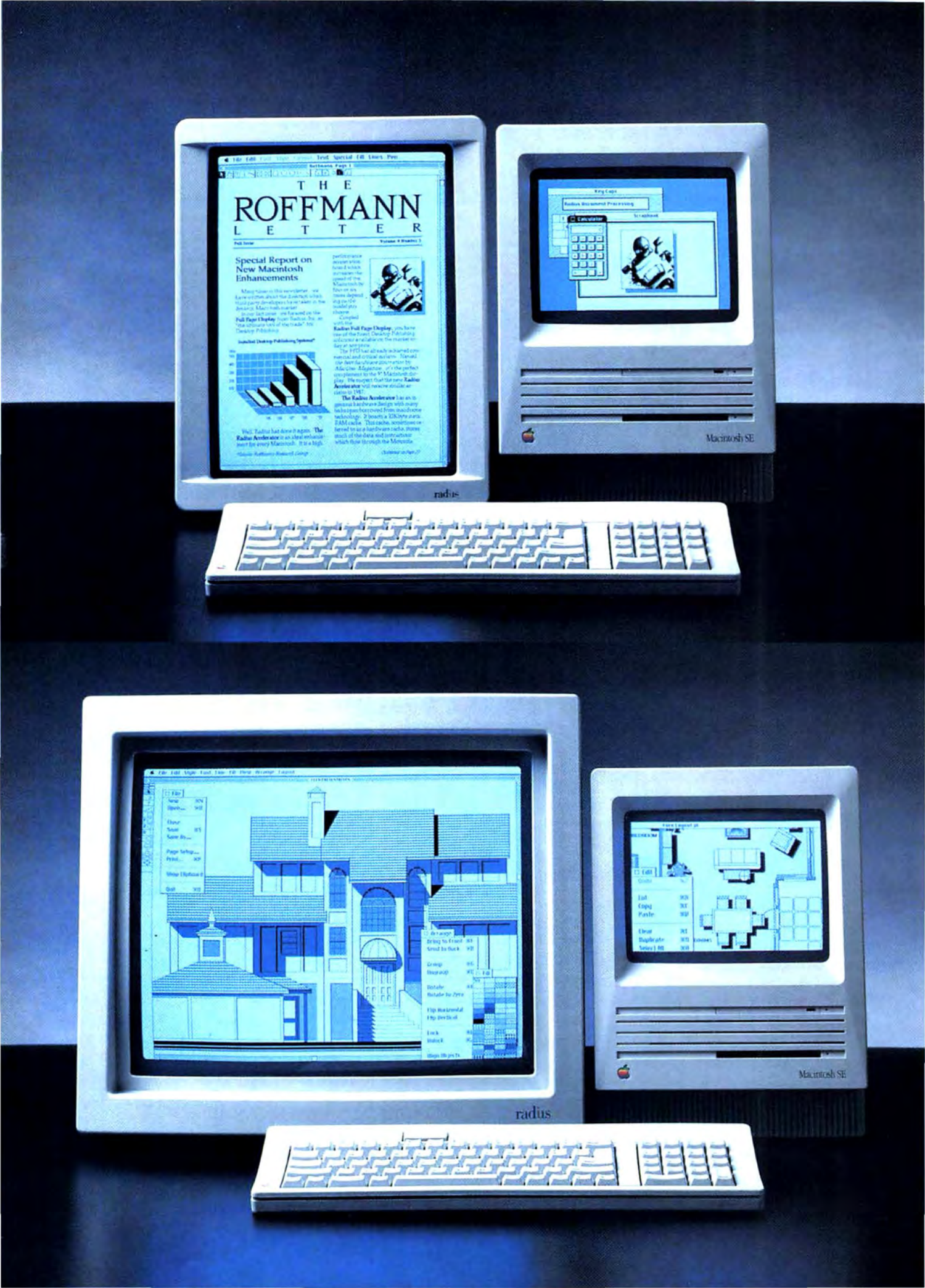
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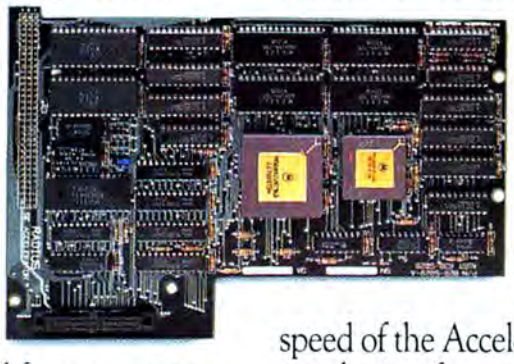

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Letters

programs are optimized to run on a Plus or better; those of us who have an "inferior" Mac are left to work around frustrating limitations, such as not being able to use the spelling checker.

My biggest question, though, is about why *MacPaint* was intentionally crippled so that it could only open one document at a time. I counted at least six instances in which the manual says that 512KE owners can open two documents at a time. But the tutorial states that only one window can be opened at a time. I'm not a fan of conspiracy theories, but it seems that all during the program's course of development, it was understood that it would open two windows. Then, at the last minute, it was decided to cripple the program. After all, submegabyte machines are doomed; the developers must have decided to present their creation to a brave new world in which the entry-level Mac is the SE. If other paint and drawing programs can open two windows on a 512KE, why can't *MacPaint*? What has Claris got against us old-timers?

J. CARTER STILES
FORT STEWART, GA

WYS≠WYG (RE: LQ)

Are you guys asleep at the switch? Still not a word about the ImageWriter LQ (standing for Lots of Quirks?), which has been out since January! Why no reviews? or descriptions? or advertising? A conspiracy of silence? You could at least tell us that it is greatly restricted in choice of fonts because few of the makers of standard fonts issue 27-, 30-, and 36-point versions, which are necessary to get the LQ to print 9-, 10-, and 12-point texts (it requires a reduction from three times the point size to approach letter quality). You could perform a service in urging font makers to produce these sizes. You could also say that the screen version of 9-point Times is anything but WYSIWYG. You could also tell your readers that it was virtually impossible to get ribbons for this new gadget until recently, when a few enterprising Apple dealers managed to squeeze them out of their manufacturer. And you could mention the most peculiar bug in the machine: You must space before each carriage return if you don't want everything scrunched together.

BLAKE LEE SPAHR
BERKELEY, CA

Well, we were going to say all that, but our reviewer printed his manuscript on an LQ and we couldn't read the scrunched output. — JZ

MAPLE LEAF BRAG

It was with interest that I read Neil Shapiro's "Viral Infection" (May '88). It was with even more interest that I read Richard Brandow's justification for unleashing a virus on the Mac community in the first place and his assurance that Macintosh people, and especially *Canadian* Macintosh people, are just too swell a group as a whole to do anything destructive with computer viruses.

I would like to enter another Canadian Macintosh user's opinion. Although it is an undisputed fact that Canadians as a genre are much too busy cutting snow blocks for their igloos and skiing in July to get around to being nasty and underhanded (especially when compared to those evil, gun-toting, nuclear-armed 'Mericans), there have been actual documented cases where a few of us (no names will be mentioned) have become so preoccupied with being polite to banking machines and buying sensible shoes that we have, on occasion, forgotten to be benevolent and nice. As a matter of fact, there are even unconfirmed reports of Canadians going out of their way to *avoid* helping little old ladies across the street and neglecting to toss their overcoats over puddles so that young ladies will not get their shoes wet.

Just one Canadian's opinion.

MARK BEAMISH
GLOUCESTER, ONTARIO

CATCH-22, WHERE ARE YOU?

I'm a little tired of the "copyright law" cop-out employed by some mail-order advertisers who try to weasel out of backing their sales. I ordered SuperMac Technology's *SuperLaserSpool* from The Saving Zone for my Mac II. Little did I know that it didn't work on a Mac II, and neither did the salesperson at The Saving Zone. When I called the customer-service number (at my expense) to explain, the staff said that they would only accept nonopened software for returns. Well, gee folks, how was I to know it would hang a Mac II without installing it? How can a copyright law be violated for a piece of software that will not even function on my machine?

Not all mail-order companies have this policy. Mac Connection asks customers for their machine type and confirms compatibility before accepting an order. That's wise and prudent. And, to the credit of SuperMac, *it* offered to accept the product back for a refund when I called.

LENERT R. OLSON
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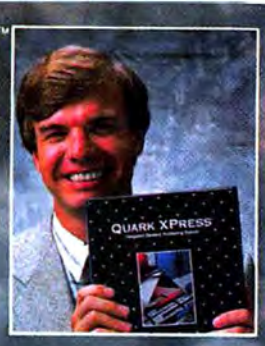
An ancient Latin phrase comes to mind: Caveat emptor. *Loosely translated, it means: Check our "MiniFinders" and "Updates" sections for compatibility info before you buy anything. (Clever, those Romans.) And check for compatibility details on the packaging before you break the software seal. But sometimes you can't escape the reality that for every discount, there's a price. Computer stores often charge more than mail-order houses, but they also give you a chance to see the software in action before you buy it. Ultimately, the choice (and responsibility) is yours.* — JZ

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When trying to buy a *MacUser* directly from a computer store in Israel, I have to pay 12 to 16 shekels ($7.50 to $10) per issue because the sole distributor of foreign-language papers here (Steimazki's Ltd.) charges for magazines by weight, not by their bookstall value. Direct subscriptions arrive six weeks late, an unacceptable delay. Other Mac enthusiasts in our MacGalilee user group have expressed their wish to stop subscribing to *MacUser* for these reasons. I hate to consider this possibility, as *MacUser* is truly the best computer magazine I know.

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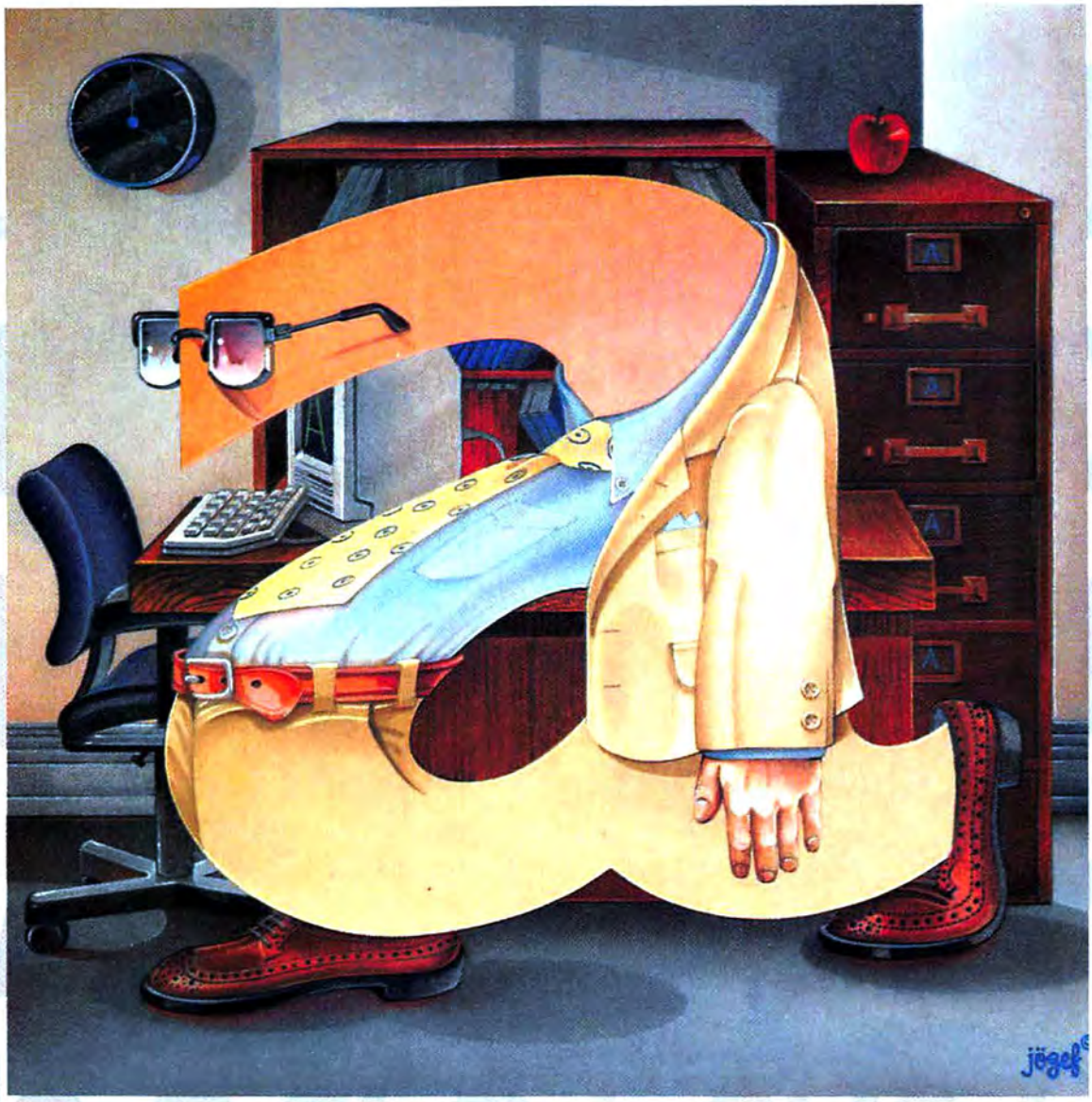
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Letters

Perhaps there's a user group in the U.S. interested in swapping copies of MacUser *for an Israeli publication?* — RI

EAGLE-EYED

Did anyone notice the IBM version of Spectrum Holobyte's *Falcon* that appeared in the Egghead Software ad (celebrating Mac Month) in the May '88 issue? An oversight or a fiendish plot to corrupt the minds of our children?

JIM PARRY
EDMONDS, WA

REVERSE THE CHARGES

When I purchased my Mac SE, the screen had an annoying "quiver" or "wiggle." A trip to the Apple dealer resulted in a conversation about my eyesight, natural flicker, and other strange considerations. I also noted that most of the other SEs had the same problem.

I experimented with metal plates to determine if it was because of a shielding problem involving the fan. The cyclic tremor of the image seemed to relate to variations in the fan's RPMs. I got the best results using an aluminized plastic card, which happened to be my US Sprint FON credit card. I glued it (after trimming to allow for the angle of the case) in a position parallel to the side of the Mac case and against the flat area of the fan. I removed the metal piece parallel to the back of the Mac. Thus, the metallized card "encloses" the fan in tandem with the curved metal plate, which is parallel to the Mac side, close to the circuitry. Believe me, it works great — no quiver, shake, or waviness. Another advantage is a lower phone bill because I no longer have access to my credit card.

RON CONTI
UPLAND, CA

BEMOANING LISA

Can you tell me why Mac software still hasn't caught up to the level that existed for the Lisa three or four years ago? My machine (a 2/10) performed almost flawlessly for about three years, before I started running Mac software on it.

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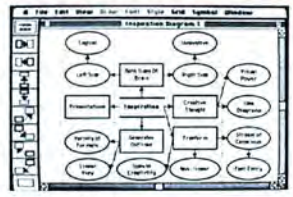
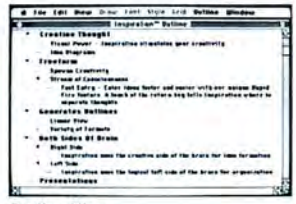


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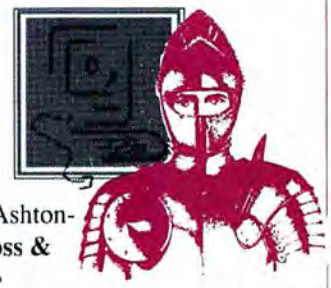
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Letters

There are several areas in which Mac software is finally catching up to the standards set by Lisa. The biggest missing piece — *MultiFinder* — is finally being taken care of, although it's still pretty clunky compared to the integration of the Lisa 7/7 software. And we did it in 1 megabyte of RAM, compared to the 2+ needed for the Mac.

Most Mac spreadsheets can open up multiple windows, but then *LisaCalc* could open up 20 panes within a window, and it could show both values and formulas at the same time. *LisaWrite* had a vertical ruler, and its headers and footers could be adjusted right in the edit window.

Lisa also had a print spooler that worked well with *all* its software and hardware; Lisa had disk repair, backup, and spelling-checker utilities built into the system that worked as smoothly as anything available today. On an ImageWriter, Mac fonts look crude compared to Lisa's near letter quality. Lisa had a good, simple password system that let you protect a file, folder, or disk. What is it about the Mac operating system that prevents us from having that same capability?

CLIFF TURNBULL
ELLSWORTH, WI

SPARE CHANGE

Let me be perfectly honest about why I've decided to subscribe to *MacUser*. It's not just the editorial and journalistic excellence of the creative writers that make up your great team. It's not your honesty and forthright attitude toward an introspective computer-minded audience. It's because the last two times I've attempted to buy your magazine, the news dealer was unable to break a large bill — which also means you're selling for too little. My check is enclosed.

ALAN
AT A BREAKFAST COUNTER

20/20 HINDSIGHT

Dvorak (June '88) is right: Bill Gates needs new glasses that stay on his nose. Maybe then he could see the lawsuits coming.

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by Steven Bobker

The Dark Side

Not everything that the future holds for microcomputers in general, and for the Macintosh in particular, is good. Recently our community has been plagued by terroristic programs known as *viruses* or *Trojan horses*. While some of these programs have not done any obvious harm by themselves, all force themselves on unsuspecting and innocent users in one way or another. And each one adds to a growing climate of paranoia and recrimination in which innocent programs and programmers are tarred, feathered, and run out of town without a trial.

The computer press, while innocent of the creation and spreading of viruses, has some responsibility for the atmosphere of fear that currently exists. All of us have acted, in our own eyes, responsibly. We have all searched our souls and spent much time considering what the proper response to viruses should be.

Should we publicize viruses as widely as possible so that all possible users are warned? This might be exactly what the people who created these things want. Their shrunken egos may feed on the publicity. Or should we ignore them as much as possible?

When the viruses were first discovered, widespread publicity was not the usual course of action because there were no tools to find and/or remove them easily. There was also (and there still is) the fear that being too explicit in a description would cause copycat viruses. The jerks who write and distribute these things aren't very original. So while there was a good deal of discussion of viruses when one was discovered in February of this year, there wasn't much coverage in the computer press. And what coverage there was tended towards the general. The first known virus specifically affecting the



DIDIER CREMIEUX

Mac was apparently written and distributed in 1987. However, it didn't become widespread or, for that matter, even recognized as a virus until after some others had been found this year.

Of course, there were exceptions, and the national media jumped on the issue because the thrill of computerized misdeeds sells copies (the *San Francisco Examiner* actually put a virus story by John Markoff, its respected computer writer, on page 1). ABC News joined the "Make a Buck on a Virus" bandwagon by running a sensationalist but remarkably uninformative "news item."

Finally, tools to keep viral infections off users' computers and rid the computers of already acquired infection are proliferating. So far all these tools have been offered free of charge. (That's unlike the situation in the MS-DOS world, where the antiviral tools sometimes cost quite a bit.)

Among those now available to you are *Virus Rx* from Apple itself, *Ferret* 1.1, *Vaccine*, and *Kill Scores*. At the very least you should acquire and install CE Software's *Vaccine*. This small program, written by Don Brown, does not cure viral infection, but it stops all operation and alerts you if a program tries any of several acts typical of viruses trying to move into your computer. You can then test that program carefully and away from anything that might be infected. *Vaccine* (and all the other programs mentioned here) is available on all BBSs and electronic services and from all user groups. And it's free. If someone wants you to pay for it, let me know so that the guy can get some free publicity.

Ferret and *Kill Scores* try to remove (and usually succeed) the widespread Scores virus from your disks. *Virus Rx* is a diagnostic tool that analyzes what's already on your disk and lets you know what looks suspicious. It produces somewhat scary-looking reports but is harmless. It neither prevents infection nor cures it; it just lets you know what is going on. You should have a copy of *Virus Rx* in your personal library. You can obtain one from any of the sources mentioned above or from any authorized Apple dealer, because it's available on AppleLink. (Be sure to bring your own blank disk.) The version of *Virus Rx* that I currently have, 1.0A3, has a minor bug. It will not let you SAVE its reports most of the time, but a SAVE AS always works. If you have any doubts about what *Virus Rx* reports, you should save the report and show it to someone more expert on viruses, if at all possible.

Other tools will appear, some aimed at curing specific viral crimes and some as preventive medicine. Robert Woodhead, one of the authors of *Wizardry*, is just about done with *Interferon*, a very strong vaccine program. And the new *Symantec Utilities for the Macintosh* (*SUM*) has a wonder-



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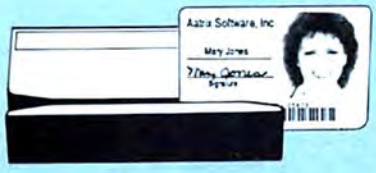
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ful option that prevents anything and anyone from tampering with the absolutely critical directory on your hard disks. This feature alone would make *SUM* very valuable. There'll be more, and *MacUser* will keep you informed.

Viruses have caused two types of negative effects. The first is the obvious (or not so obvious) physical and mental damage done by the actual infection. The other is the atmosphere of fear and distrust engendered by the publicity given these criminal acts. People have taken to blaming every System crash on viruses or on wholly innocent programs. Reputations are easily sullied and bugs are not reported and fixed when people think that viruses are at fault.

One of the worst cases I have come across is unwarranted denigration of *Stuffit!*, a wonderful and widely used utility written by Raymond Lau. Ray is one of the best and most creative Mac programmers out there. He's also extremely knowledgeable and extremely careful with his programs. When he distributes a program, it is absolutely virus-free. There's no doubt about that.

Unfortunately, someone modified a copy of *Stuffit!* by adding a virus and then uploaded the modified copy to a bulletin board in Texas. I'd like to quote Ray Lau (with his permission) on what then happened: "Reeves said he believes Compro's machines could have been contaminated by a program called *Stuffit!*, which is distributed over the CompuServe bulletin board as shareware."

As Ray goes on to point out, the copy on CompuServe is, was, and always will be virus-free, because it's a copy he put there personally. Another publication got the same story somewhat more accurately in one issue, but then the following week the editorial mentioned, without any limitations or qualifications, that *Stuffit!* was infected. As a result, Ray has received numerous nasty letters and some calls and has had both his reputation and *Stuffit!*'s damaged. Here are the conclusions Ray came to in his initial letter (with which I totally agree): "Such misleading statements serve to stifle the software development process and accomplish nothing but to sell issues. . . . If you think I'm upset, you are right." (The current version of *Stuffit!* is 1.40A; the Texas version that was infected was 1.20.)

Finally, I'd like to put up $100 of my own money as a reward to any person who can prove that a particular person or persons have created and distributed a virus. This offer does not apply to the already known *MacMag* and Scores crimes. I would hope that others will add to the reward pool. It is only by acting unequivocally and together that we will stamp out these idiots and the stupid things they are doing. You can reach me by U.S. mail at the *MacUser* offices or electronically on CompuServe (72257,2671), MCI-Mail (SBobker), or AppleLink (X0259).

KEEPING AN EYE ON CD

Right after we went to press last month, Tandy, the Texas-based computer company that many feel will create the first American-made Mac clone, announced they had developed a technology that would let users both write to and erase at will on optical media. They expect to have working prototypes later this year, and industry experts have predicted viable drives using this technology within 18 to 24 months.

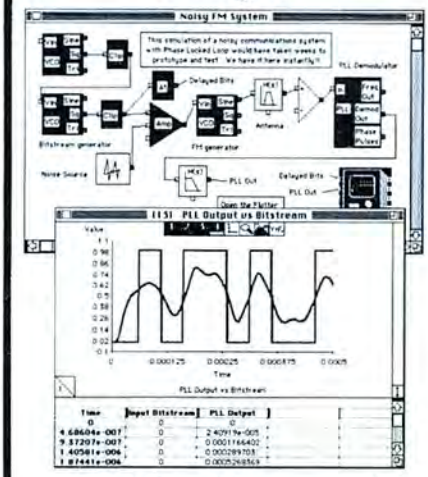
While this development is excellent news, I'm less sanguine about the prospect of seeing useful results that quickly. Reading between the lines and checking my sources, I still see many problems ahead. I think that the prediction I made last month (of a useful read/write optical technology within 3 to 4 years) is still valid, although the short side (3 years) does look to be a better choice. I certainly hope that I was wrong on this one and that Tandy, Kodak, or some licensee gets such a drive out sooner. In any event, I'll report the latest CD-ROM information regularly in this space.

Of far greater and far, far more immediate significance than the Tandy announcement is Discovery Systems' breakthrough on CD-ROM production pricing. Until now, the price of producing a CD-ROM — especially in the small quantities that are all the

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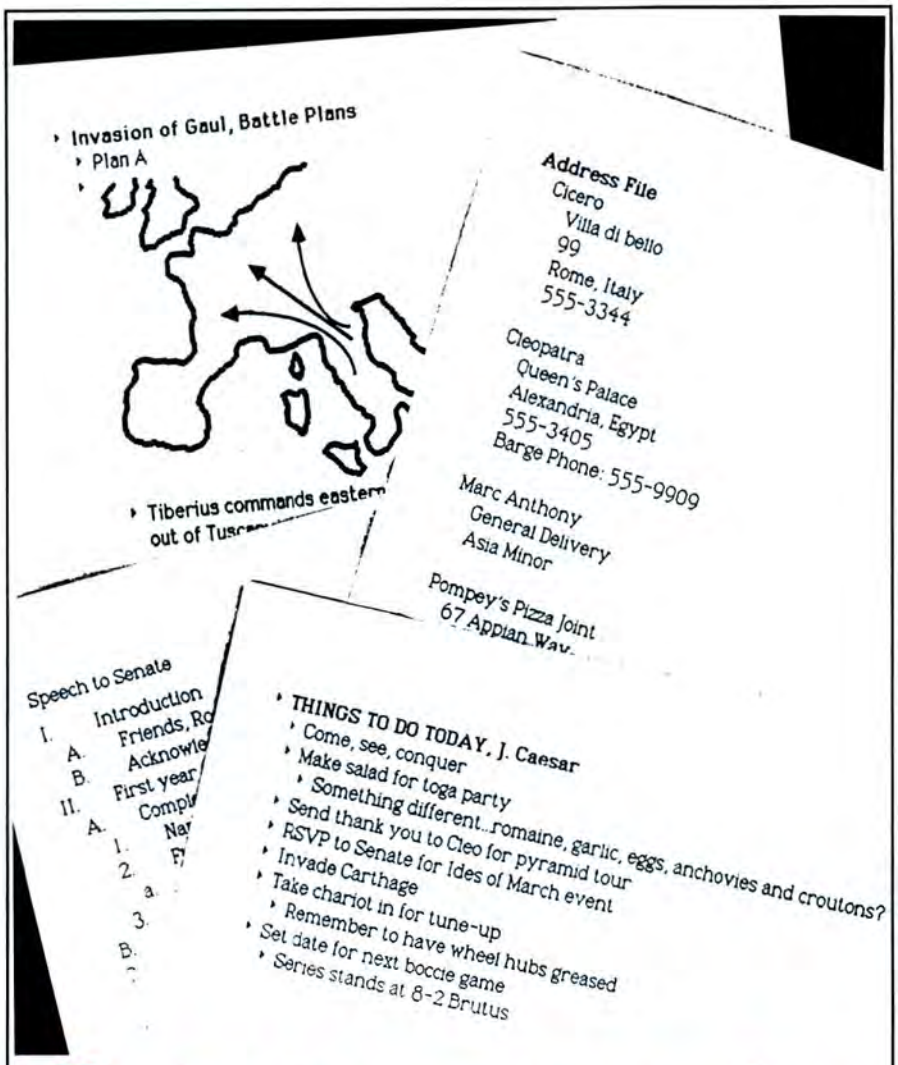
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THE OPEN WINDOW

young market can support — was very high. Indeed, the price per unit was so high that many developers simply couldn't even think about entering the market.

The new pricing is truly a breakthrough, and while the per-unit price is still not cheap, it is now within reason for far more developers.

Discovery Systems is now charging $1,500 (for standard 5-day turnaround) to $3,000 (for 1-day rush service) for mastering.

This is a huge drop from the previous industry prices, which ranged from $2,500 to over $10,000 for the same service. Discovery will support the High Sierra, ISO 9660 (very similar to High Sierra), and HFS (Mac) formats.

Discovery has also lowered the cost of creating the actual discs. Formerly, prices started at about $2.50 per disc (in quantity) and went up to whatever the traffic would bear.

Discovery plans to charge a flat $2.00 per disc. There is no minimum quantity required. You can order one disc and you'll be billed $1,502 (assuming no extras are chosen). Extras include jewel boxes (25^2/disc), insertion of user-supplied printed material (25^2/disc), shrink wrap (5^2/disc), and serialization ($1/disc).

These are great prices. They will let many more developers into the CD-ROM marketplace. It remains to be seen whether this was a great economic move by Discovery Systems, allowing them to dominate the potentially huge CD-ROM production field, or merely a visionary (and costly to Discovery Systems) attempt to spur the development of CD-ROM software. Either way, it's great news for CD-ROM users and those who want to get into this new field. We have a lot to thank Discovery Systems for. I hope it works out well for everyone.

Oh yes — if those prices make your CD-ROM development plans a lot more real all of a sudden, contact Jack Ryan at Discovery Systems to get complete information.

His address is Discovery Systems, 7001 Discovery Boulevard, Dublin, Ohio 43017, and his phone number is (614) 761-4287.

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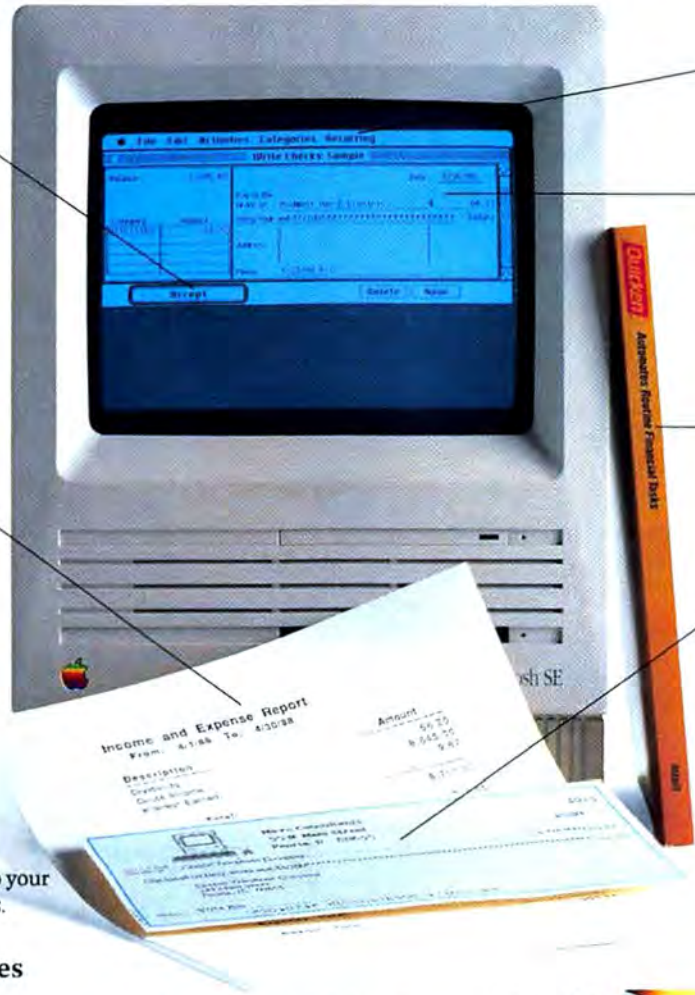
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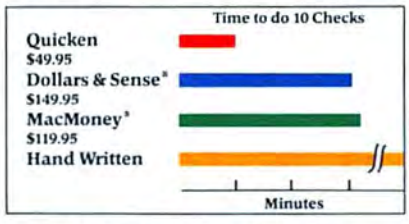
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* *SALES FIGURES FOR 1989 ARE JUST A WILD GUESS*

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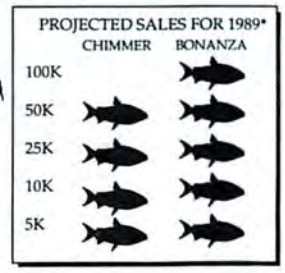


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Creative Evolution

by Neil L. Shapiro

I'd like to continue my examination of creators' rights with a sort of reverse twist. The past few columns have focused on why it is very important that the Macintosh Community not sit still for people's rights to their own work being tampered with, how such rights are protected, and issues such as that.

But now it's "time for something completely different." Now let's talk about how a community such as ours, based upon sharing in the past, can be in a spot of trouble when all people care about is what they own. First, we need to understand the past. For some of us who have been around computing since the mid-seventies and before, this will be a bit of a rehash. But it's good — and useful — to sometimes reminisce.

CITIZENS ON PARADE

Do you remember People's Computer Company, and Bob Albrecht, a.k.a. "The Dragon"? Do the words "Running Light Without Overbyte" instantly make you think of *Dr. Dobb's Journal of Computer Calisthenics and Orthodontia*? Did you ever wonder "What To Do After You Hit Return"? The mid-seventies were full of magazines and journals, newsletters, and small press publications devoted to the concept that computing was a sort of Woodstock Nation. These people, operating in the burgeoning political and social milieu of the late sixties through late seventies, saw the computer as being the very embodiment, the promise and fulfillment, of the shouted, chanted, desperately believed slogan: "Power To The People." Owing to people such as Bob Albrecht and James Warren (just two of the people at People's Computer Company, which begat *Dr. Dobb's* as well as some of the first computer books accessible to the layman); David Ahl (*Creative Computing* magazine and the world's first type-them-yourself computer game book); Wayne Green (*Byte*); and other pioneer publishers, people not only got excited about the concept of computer power, they were able to share their expertise, their hopes, their dreams, and their inventions in one big, communal broth of pooled ideas.



JENNY ADAMS

The community, thanks to *HyperCard,* is once more a seething mass of wild ideas being shared.

TINY, BUT NOT SMALL

How did this community work together on various ideas? Let's trace just one idea through one year's (1976) worth of publication of ideas in the old *Dr. Dobb's* magazine: the community effort to design a "Tiny BASIC." In 1976 memory was very expensive for personal computers. If you were lucky (?) enough to have one of those early 8080 and 6800 machines (and advanced enough to build it and then program by throwing front panel switches following an octal numbering system), you probably did not have more than 4K of RAM. Well, in 1976 the search was on within the new community for a high-level language that would release people from having to program with the front panel switches and that would also enable those who had not already taken Ph.D.s in computer science to program. At that time, BASIC looked pretty darn good. But existing versions of BASIC could not be crammed into the small memories of most personal computers. The January '76 issue led off with a story called "Design Notes For Tiny BASIC." It is evocative of the times that the authors were bylined as Dennis Allison, Happy Lady, and Friends. The story began, "A lot of people have just gotten into having their own computer. Often they don't know too much about software and particularly systems software, but would like to be able to program in something other than machine language. . . ." Sounds pretty familiar, doesn't it? In that same issue were the stories "Extendable Tiny BASIC" by John Rible, "Corrected Tiny BASIC K" by Bernard Greening, and "Tiny BASIC, Extended Version" by Dick Whipple and John Arnold. The succeeding issues had stories ranging from "Yet Another BASIC BOMB-OUT!" to "Tiny BASIC for the 6800 and 6502" by Tom Pittman. Perhaps it

was kismet that in these same issues were stories such as "Floating Point Routines" for the 6502 by Steve Wozniak and Roy Rankin; not to mention "A 6502 Disassembler From Apple" by Steve Wozniak and Allen Baum or "A Number Game For The 6502" by Steve Wozniak. Things were coming together. Things that most of us could never have expected in our wildest dreams. At the time, I did not yet own a personal computer and had never operated one. My interest stemmed from having attended one computer fair in New York that year and having mostly seen terminals hooked to time-share mainframes. But I picked up "What To Do After You Hit Return" — a massively oversized book of BASIC programs that could be hand-typed into a computer system capable of using BASIC. Of course, at the time it was assumed such a machine would be a terminal on a college campus hooked into the main computer system.

As someone who had just graduated from a journalism program, I despaired of ever seeing such a computer system. And yet, BASIC was so simple to learn that I was able to follow the printed listings and imagine what it could be like to have the power of a computer brain at my fingertips. Reading *Dr. Dobb's,* for me, was rather like reading a glossy catalog of wonderful merchandise written in a language that was only understood a little, or a tiny, bit. I understood enough to realize that what I was missing was fun but probably still over my head. I was determined to wait until BASIC was easier to get up and running and then, somehow (funds were a problem) purchase a machine.

Then a new player with a new plan came into the community. Computing for a long, long time would never be the same.

FROM TAPES TO TIME

Bill Gates had decided to write his own version of a complete, as opposed to tiny, BASIC. His first versions came out on paper tape. This was before cassette interfaces (and the Kansas City standards) were very popular and long, long before floppy disks for the home were much more than a dream. He sold the tapes. For real money. Well, the letter columns of many popular computer hobbyist magazines and periodicals exploded. You would have thought that someone was auctioning off the Lindbergh baby. He was not so much criticized as torn apart by people, mostly college students, who felt that asking money for an advance in computer science was a little bit like Einstein trying to get royalties whenever and wherever E equaled MC-squared. Things got ugly. Software piracy was invented. The first Jolly Rogers flew over copied paper tapes that whizzed their illegal way through many university computer systems.

> In 1988, we once again have all sorts of new people discovering personal computers — discovering the Macintosh, the most accessible computer ever manufactured.

Gates, of course, was aghast. I recall reading his open letter on this subject in a couple of the magazines. The arguments he made were just what today we would have expected — the rights of an author, copyright, and so on. At the time, the arguments were new. But for a while it hardly looked as if Bill's ideas would ever earn him much money — let alone turn him into the prototypical young millionaire with his face on *Time.* What saved Bill's behind was Apple Computer. By licensing his BASIC to be put into as-good-as-uncopyable ROMs within machines like the Apple II, Bill avoided the problems of piracy, and his BASIC made him a fortune. Suddenly (well, in the space of 18 months) it became obvious to people who could program that perhaps they were being a little too open, a little too, well, free with their ideas.

GOES AROUND, COMES AROUND

The community well of ideas did not run dry, not completely. But fewer and fewer people were sharing complete languages and the like in the pages of the media. The magazines began, as you would expect they would, to review software and to explain how existing systems worked. And, as through the years the community developed, there was always some sharing of ideas.

But once big business and corporate law descended, many, many ideas became company nest eggs and thus protected. And this has continued to the present day with everything that we have discussed, from look-and-feel lawsuits to the protection of games in one medium against being copied in another. But, to quote from the music of a hopeful era, the times they are a'changin'. What made the community so lively in 1976 was that so many people had discovered personal computers and were excited to share their new feelings and methods with each other.

At the beginning of 1976, there were few people making a to-be-protected living in that field. By the end of 1978, thousands of people had rights that they really had to, and have to, protect. But now, in 1988, we once again have all sorts of new people discovering personal computers — discovering the Macintosh, the most accessible computer ever manufactured. Top that off with *HyperCard* and you can see why it is called a "Computer Revolution." Because it goes around, it revolves, it comes back to where it was once before.

The community, thanks to *HyperCard,* is once more a seething mass of wild ideas being shared. Next month, I'll take a quick look at what people are doing with *HyperCard* in our new version of a computing Woodstock Nation.

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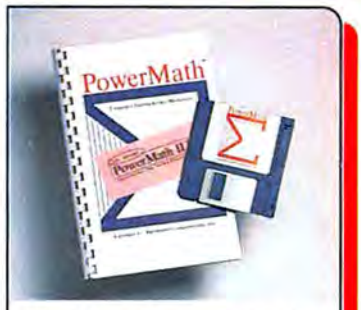
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EDITED BY LOUISE KOHL

The Burn-In of Atlanta

The May Comdex show (held in Atlanta this year) often functions as spring training for the bigger Las Vegas show in the fall. (Or, for the sake of a headline, as a burn-in test for new products.) It's a mostly blue show, featuring new and prerelease hardware for the IBM world. Many of these will eventually migrate to the Mac community. And here and there are some Mac-specific wares, going through a dress rehearsal for the August Macworld Expo.

The biggest product waiting in the wings is, well, *Wingz*, the billion-plus cell spreadsheet promising more speed, fancier graphics, and greater programmability than the leading brand. Fully functioning demo disks (sans the SAVE command) should be available from Informix (16011 College Boulevard, Lenexa, KS 66219; (913) 492-3800) by the time you read this, with the final release of the program due by fall.

Optical memory glistened everywhere. NEC announced plans for a $999 Mac-compatible CD-ROM drive, due out in July. NEC is also marketing two discs of clip art (from Enabling Technologies) on CD-ROM; the discs feature thousands of 3-D graphics, fonts, and video images (NEC, 1255 Michael Drive, Wood Dale, IL 60191; (312) 860-9500). Toshiba was showing (and shipping) a $995 CD-ROM subsystem (9740 Irvine Boulevard, Irvine, CA 92718; (714) 583-3150). Apple's $1,199 CD-ROM drive had not yet shipped as of press time.

Ziff Communications and Lotus Development introduced the *Computer Library*, a CD-ROM subscription series containing abstracts and indexes for over 100 computer magazines (with full text for Ziff-Davis publications, including *MacUser*). The disc will initially be available only in MS-DOS format; conversion to Mac format is underway. Call (212) 503-4400 for more information.

Erasable optical discs moved closer to reality. Maxtor (211 River Oaks Parkway, San Jose, CA 95134; (408) 432-1700) announced plans for a plug-and-play SCSI rewritable optical drive due to ship by the end of 1988.

If you prefer tape back-up, which format should you choose? How 'bout DAT one? Even before it has made much headway in the U.S. consumer electronics market, Digital Audio Tape is making tracks in data storage. A cartridge half the size of traditional cassettes can store 1.2 gigabytes. GigaTape (5266 Hollister Avenue, Santa Barbara, CA 93111; (805) 964-8990) announced a SCSI DAT drive that it plans to sell for about $6,500 when it ships this fall. The cassettes will sell for about $25 each (a lot less than the $1,500 or so worth of floppies you'd need to store 1.2 gigabytes).

For more conventional tape back-up, Irwin Magnetics was previewing its 80-megabyte drive (enough capacity to back up an A/UX system). The drive includes easy-to-use color-coded (on the Mac II) software. The same tapes can be read by both Mac and MS-DOS machines. Contact Irwin at 2101 Commonwealth Boulevard, Ann Arbor, MI 48105; (313) 996-3300. (Irwin's booth entertainment got our vote for Best Magic Act.)



What's dis? Dis is DAT. A single Digital Audio Tape cassette can hold 1.2 gigabytes, the equivalent of 1,500 double-sided floppies.

If 20 megabytes is enough for you, keep an eye out for the Plato Hardpac 20 portable disk drive. The $695 SCSI drive is the size of a fat paperback novel, small enough to stuff into a briefcase. (You also need a $95 power supply and cable set at each computer with which you'll be using the Hardpac.) It's from Aristotle Industries (C7-1305 Meader Avenue, Bellingham, WA 98226; (206) 676-4377).

Connectivity continues to be a hot buzz word at trade shows. Communications Research Group (5615 Corporate Boulevard, Baton Rouge, LA 70808; (504) 923-0888) announced *MacBLAST*, software that links Macs to mainframe, minis, and PCs from IBM, Burroughs, Unisys, AT&T, DEC, Data General, Wang, Hewlett-Packard, Prime, and many others. Tangent's *TangentShare* system lets you use an IBM PC as a dedicated file server (instead of wasting a perfectly good Mac). (Tangent, 5990-K Unity Drive, Norcross, GA 30071; (404) 662-0366.) MacNode



Geeks Bearing Gifts Dep't.: The Plato Hardpac 20 portable hard disk from Aristotle Industries is all Greek to us.

from Microserve (276 Fifth Avenue, New York, NY 10001; (212) 683-2811) is an MS-DOS coprocessor (in a separate box, rather than taking up a Mac II or SE slot) that connects Macs to Novell LANs for E-mail and file transfer (including Clipboard files).

High-end hardware from the European manufacturer Agfa is coming: two scanners (600 and 800 dpi) and an 18-page-per-minute, 400-dpi PostScript laser printer, with 6 megabytes of RAM, a 20-megabyte hard disk, and 73 typefaces as standard equipment. Also from Europe: The Type Market (3821 Homewood Road, Memphis, TN 38118; (901) 795-8973) is bringing its library of 600 typefonts stateside. And from Taiwan, the cleverly named *Image Tool for Office Processing* is looking for an American distributor. (*ITOP,* as its friends call it, is actually more of an *office* tool for *image* processing, but we won't quibble.) It's a Mac II graphics-retouching application, similar to *Image Studio,* developed by the Technology Research Division of the Institute for Information Industry (3Fl., 390, Fu-Hsing South Road, Sec. 1, Taipei 10640, Taiwan, R.O.C.; 886-2-706-4775).

Reach Out and Touch Some Mac Dept.: The MouseTouch is a touch-sensitive screen with 4,096 X 4,096 resolution from Elographics (1283 Reamwood Avenue, Sunnyvale, CA 94089; (408) 734-9111). It turns your finger into a mouse — touch the screen to move or drag objects, and tap or double-tap instead of clicking. It comes preinstalled on a variety of monitors or can be retrofitted onto your current monitor.

On the software side, most of the Mac industry heavyweights were no-shows. If you like accounting, though, Atlanta was the place to be. The *SBT Database Accounting Library,* a popular favorite among the MS-DOS/*dBASE* crowd, is being converted to run under the new *FoxBASE+/Mac* database. (Contact SBT at One Harbor Drive, Sausalito, CA 94965; (415) 331-9900.) The *Back to Basics Professional* series from Peachtree (4355 Shackleford Road, Department BTB, Norcross, GA 30093; (800) 247-3224) is being expanded, with a new invoicing module and compatibility with *MultiFinder* and the Mac II.

There's more to life than accounting, though. Off the floor, we saw some impressive arcade-style games that you'll be hearing about soon.

Finally, in the God Didn't Make Little Blue Apples Dept.: Several booths featured TransDesk terminals from UCM (13918 Equitable Road, Cerritos, CA 90701; (213) 404-5611). TransDesks are PC clones in an all-in-one Mac-like box. They're proving convenient for convention exhibitors who appreciate the portability of having everything in one box. Did someone say "look and feel?"

— Jon Zilber



The TransDesk PC clone from UCM looks suspiciously familiar (especially when you run *Windows* 2.03 on it). Is this the fate of leftover Dynamac chassis?

Caveat Emptor

From most accounts, the long-awaited Macintosh version of *WordPerfect* looks likely to live up to its advanced billing — *if* the copy you have has the right date. It seems that several different editions are floating around, all with the same version number (1.0) but with different dates. Unfortunately, not all are equally reliable, and at least one problematic version has inadvertently made it onto dealers' shelves. The WordPerfect folks are no happier about this than the users. If you have a copy of *WordPerfect* that doesn't do what it's supposed to, take it back to your dealer and exchange it. The latest date is what you want. As of press time, that was version 1.0, dated April 26. The one you *don't* want (take my word for it) is dated April 5. Copies with this date were recalled practically as soon as they shipped, but some slipped out anyway. WordPerfect, 288 W. Center Street, Orem, UT 84057; (801) 227-4000.

— Louise Kohl

Collisions

Generation Four, publishers of *CommCenter,* a desktop communications program and one of the first standalone *4th Dimension* applications, has discovered a problem with *4D* multiuser modes on *TOPS* networks. Generation Four recently sent out the following "recommendation": "Do not, under any circumstances, at any time, in any way, access a *4th Dimension* application in a multiuser mode from the Macintosh that is publishing that application."

It seems that if the server publishing the *4th Dimension* and any other Mac on the network try to write the same Semaphore simultaneously, you get an instant lock-out, and as Generation Four's John Zoltai puts it, "The server goes off into la-la land." *TOPS* is aware of the problem, although the most recent version does not correct it. For more info on *CommCenter,* Generation Four can be reached at 3232 San Mateo NE, #199, Albuquerque, NM 87110; (505) 765-9666. You have been warned.

— Louise Kohl

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NEWS LINE!

End of an Era

MENLO PARK, CA — **Activision,** one of the first names in video and computer games, has recently changed both its name and image. Now **Mediagenics,** the company focuses on two divisions — presentation tools and entertainment — on several hardware platforms. Mediagenics will continue to produce both stackware and non-*HyperCard* applications for the Mac. Its entertainment software will appear under its original labels — *Activision, Infocom,* or *Gamestar* — and will be marketed by Mediagenics.

Taking a Quantum Link

BOSTON — AppleLink, an on-line information and communication service heretofore limited to Apple employees, dealers, and developers, is going public. AppleLink Personal Edition is the result of a collaboration between **Apple** and **Quantum Computer Services.** In addition to the usual forums and message services, the service will offer timely access to Apple product and technical information and connection to Apple's Customer Relations department. Apple II owners should be up and running by the time this sees print. Mac owners will have to wait a little longer — probably for a *HyperCard* front end.

CD HyperCard?

CUPERTINO, CA — The latest version of *HyperCard* (1.2), which is designed to support read-only media such as CD-ROM, is out the door almost simultaneously with the AppleCD SC. The new *HyperCard* also includes multiuser stack access, increased speed (Apple claims a 400-to-600-percent improvement over version 1.1), and new commands. Check with your dealer or electronic services for availability.

The AppleCD SC started shipping in late May and should be in stores with a price tag in the neighborhood of $1,200.

Try It, You'll Like It

SAN FRANCISCO — Internal and external disk drives from **Jasmine Technologies** are being bundled with demonstration versions of seven popular applications and utilities. The demoware packages include *4th Dimension, QuicKeys, Insight, QuickMail, Filemaker 4, WriteNow,* and *Super 3D.* Jasmine has also redesigned all of its drives and has added a 40-megabyte tape back-up drive to its product line.

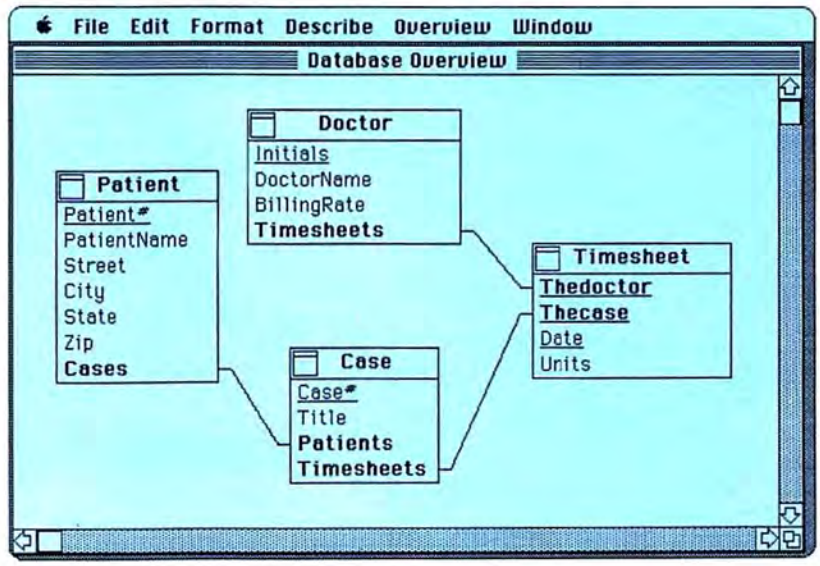
Thin Bits . . . More new strategic alliances: **Rodime** and **Fifth Generation** have an agreement to provide free copies of *FastBack* back-up software to folks buying any Rodime Macintosh drive — internal or external . . . **Mediagenics** (formerly **Activision**) has announced a marketing, sales, and distribution agreement with **Working Software,** publishers of several excellent Mac products, including *SpellsWell* . . . **Mediagenics'** *Reports!* does not run with version 1.2 of *HyperCard,* but the publisher promises a quick fix . . . **Novell** is shipping an AppleShare-compatible version of its networking system for Mac users.

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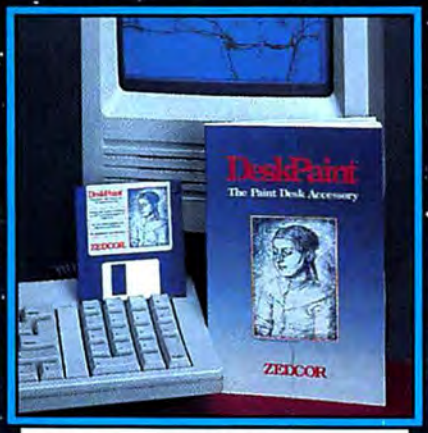
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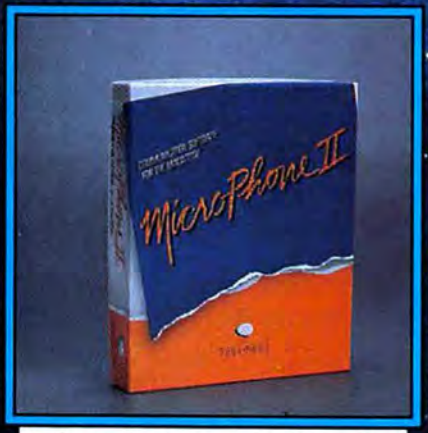
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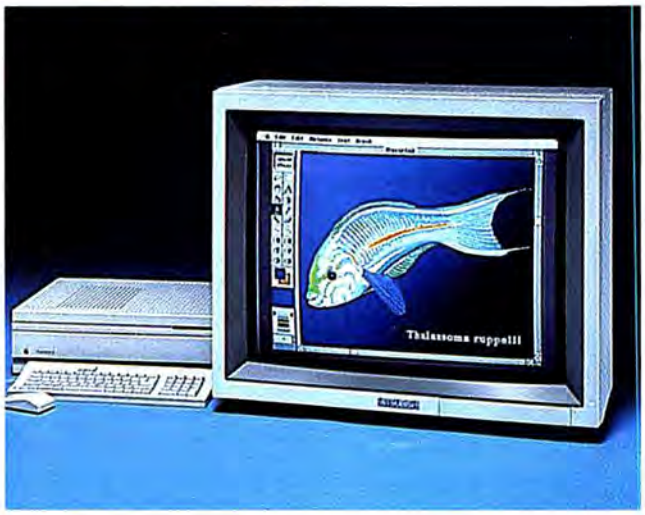
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Almost Large As Life

On reflection, it seems amazing that Macintosh users put up with that 9-inch screen for so long. And not only put up with it, but defended it against all comers on the grounds of high resolution and who needs color? The appearance of the Mac II and its acceptance in workstation environments has changed all that. Now it seems that as far as screens go, it's the bigger, the better.

Right now, Mitsubishi's new 33-inch XC-3310 monitor is about as big as it gets. (I hasten to add that this is being written about two and a half months before you read it; and no one is more aware than we are how fast these things change.) The large screen, with a 31-inch view area, is targeted at the two markets where the Mac is making major inroads: presentation graphics and CAD/CAM. It supports color and also connects handily to your VCR or LaserDisc player. What more could you ask for?

The XC-3310 is available through any Mitsubishi distributor at a suggested retail price of $5,495. For more information, you can reach the Mitsubishi Computer Peripherals Division at 991 Knox St., Torrance, CA 90502; (213) 515-3993. And be sure to follow MacUser Labs' series of reports on monitors, which starts in this issue.

— Louise Kohl

Macworld Show Preview

Okay, so we've been sticking our noses in where they don't belong, but we do know what's waiting in the *Wingz* at the Macworld Expo in Boston August 10-13. The show will take up two locations, the World Trade Center (WTC) and the Bayside Exposition Center (BEC).

Possibly out of the vapors for Informix will be *Wingz* (booth #5604 WTC). We also found that *More* is better as Symantec (booth #5503 WTC) brings a new *More* to the presentation front. Speaking of presentations, Presentation Technologies (booth #5164 WTC) boasts a new film recorder. *Montage FR1* will provide faster color processing in a high-resolution format for creating and capturing on film graphics generated by presentation and graphics software applications. The first of a *Montage* Presentation Series, the *FR 1* opens a path for enhancement systems such as a color thermal printer.

Silicon Beach Software (booth #1816 BEC) will unveil a new version of *SuperPaint* while it promotes *Digital Darkroom,* which will be shipping by show time. Another product on our ship list is *GOfer* 1.0 by Microlytics (booth #620 BEC). You might want to check the Apple booth (#1618 BEC) to see *HyperCard* 1.2.

Stepping Out II the Berkeley System Design booth (#442 BEC), you'll not only see the 2.0 version of their Mac screen extender, but also you'll possibly get a preview of *outSPOKEN,* a Mac accessory for blind users. Market Engineering Corporation (booth #551 BEC) will be gazing into its *Crystal Ball,* a financial forecaster. Microsoft will have *Word* 3.01 plus .09 or so on display. Whatever they call it, it looks good. You'll also stumble upon *PowerPoint,* a good program in the growing line of presentation software.

The latest in four-color separation and CD-ROM are sure to be hot items somewhere on the floor. You can look for *Scoop,* but we don't think you'll find it. However, a ditty sure to be there is the latest version of *WordPerfect* 1.0 (booth #5234 WTC). Want to know the FAX? You might get the FAX from Solutions International (booth #1415 BEC). If you're looking into security and portability for your Mac, you might want to see Mega Drive's (booth #1838 BEC) *Disk Pack.* And while you're there, you could take a look at the latest version of *Personal Writer.*

For the big *Finale,* Coda Music Software (booth #5004 BEC) will unveil its addition to the second generation of music programs. And, saved from the Titanic by Ashton-Tate (booth # 1332 BEC), *FullWrite Professional,* will make its long-awaited debut.

— Kristi Coale

Go For This Utility

Summer seems to be the best time to grow utility programs for the Mac. And 1988 is really coming up with a bumper crop. Joining Symantec's *SUM* in the blue-ribbon category is Microlytics' *GOfer. GOfer* is based on a program developed for MS-DOS machines, but the basic idea is about all that it shares with its older and less able cousin.

The idea behind *GOfer* is very simple. You know that you wrote something, but you don't know where the material is. You can't even begin to remember the file name. *GOfer* will search virtually all of your files if you tell it a snippet of your actual immortal prose. When it finds the matching material, it will display the material in context. You can even select and copy the material (and adjacent material, scrolling up or down as necessary) straight from *GOfer.*

You can search for simpler things, like every occurrence of your name on your hard disk, or vastly more complicated requests can be made. There is a full range of search limiters or logical connectors, including And, Or, Not, and Nearby.

Another very neat feature lets you add your current selection to the Clipboard. That's often much more useful than the normal Mac procedure, in which a COPY or CUT replaces the contents of the Clipboard.

GOfer works best with text and *MacWrite* files, but it can read from, display, and allow copying from most programs, including all the major word processors, page layout programs, and outliners/organizers (like *More*). Microlytics plans to constantly enhance *GOfer*'s ability to work with other formats.

What *GOfer* isn't is fast. Currently available beta versions still process material at well under a megabyte per minute. The ultimate goal is about a megabyte per minute, but don't expect quite that in version 1.0. OK, I hear you: "But that means a half hour to search my DataFrame XP20 (or whatever)! I can't afford to spend that much time just letting my Mac look for things. I have real work to do!"

Not only did I hear you, but Microlytics did, too; even before you said it. *GOfer* will search in the background, with or without the benefit of *MultiFinder.* Thus, even if you don't have the memory to run *MultiFinder, GOfer* can search while you do other work. Even in its current, nearly complete form, this is one slick program.

GOfer will list for $79.95. For more information, contact Microlytics at 300 Main Street, Suite 716, East Rochester, NY 14445, or call them at (800) 828-6293, or at (716) 377-0130 in NY. As with all Microlytics' products, *GOfer* will be sold with a 30-day, money-back guarantee.

— Ellen Hirame

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Addison Wesley
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Inside Macintosh, Vol. 3 (Soft Back) ... 15.
Inside Macintosh, Vol. 5 (Soft Back) ... 21.
Asher Engineering
Turbo Trackball (SE & Mac II) 85.
Bantam Books
Adobe Illustrator:Handbook... 18.
Hypercard Handbook 21.
Beck Tech
Fanny Mac 65.
Benko-Wren
Macstation II 75.
Datadesk
Hyper Dialer 29.
Mac 101 Keyboard– Mac II/SE/512/+ ... 145.
Ergotron
Mactilt 72.
Mouse Cleaner 360° 12.
Golden Ribbons
Imagewriter Ribbons -Black 4.
Kalmar Designs - Teakwood Disk File Cabinet
(Holds 45 Disks) 19.
(Holds 90 Disks) 29.
Kensington Microware
Mac Disk Drive Clean Kit 19.
Mactilt 23.
Polarizing Filter 35.
Printer Muffler 48.
System Saver Mac Fan 64.
Turbo Mouse 88.
Kraft
Joystick (Quickstick)128/512/+ 38.
Mac Packs – Gray,Navy,Wine
Imagewriter Bag 49.
Mac Plus/SE Bag 68.
Mac SE Bag *Xt -Navy Only 74.
Mac Zone
6 Outlet Noise & Surge Protector 24.
800k Disk Drive (LED light) 189.
Mouse Pad -Red,Blue,Gray 6.
ToolKit To Open Mac 20.
MSC Technologies
A+ Mouse Adb (SE Or Mac II) 85.
A+ Mouse (512 And Plus) 65.
Scancofurn
Mac Table w/cabinet 375.
Sensible Softworks
Bags come in Gray, Navy, & Wine
Imagewriter I or II Bag 49.
Mac 512/Plus/SE Bag 58.
Smith & Bellows
Diskette Chest - (Holds 96 Disks) 35.
Sony
Double Sided Disks-10 Pack 18.
Double Sided Disks-Bulk 1.45
Single Sided Disks-10 Pack 14.
Single Sided Disks-Bulk 1.20
3M
40 Meg DC-2000 Tape Cartridge 23.
Symmetry
Hyper DA 38.
Williams & Macias
Labels, 216 Count Laser 20.
My Disklabeler *Color* 41.
My Disklabeler *Laser* 48.

Business/Personal

Acius
4th Dimension 549.
Activision
Focal Point 59.
Aegis Development
Doug Clapp'S Word Tools 45.
Ashton Tate
Dbase Mac 298.
Full Write Professional CALL
Blyth Software
Omnis 3+ 3.25 & Express 288.
Bootware Software
Resume Writer -Professional Version ... 60.
Borland
Reflex Plus 188.
Brainpower
Graphidex 75.
Design Scope 1.15 128.
Statview 512+ 178.
Bravo
Mac Calc 79.
Cricket Software
Cricket Graph 124.
Dataviz
Mac Link Plus W/Cable 134.
Deneba Software
Coach Professional 109.
Coach Thesaurus 36.
Electronic Arts
Thunder 32.
Business Venture 46.
Legisoft/Nolo Press
Will Maker (Formerly Will Writer) 38.
Lundeen & Associates
Works Plus Command 62.
Works Plus Spell 1.1 47.
Mecca
Managing Your Money 130.
Micro Lytics
Word Finder 35.
Microsoft
Excel 1.06 249.
File 139.
Word 3.02 249.
Works 1.1 198.
Write 229.
Migent
In House Accountant 120.
Monogram
Business Sense 262.
Dollars & Sense 4.0 82.
Nashoba Systems
Filemaker Plus 195.
Odesta
Double Helix Release 2 350.
Peripherals Computers & Supplies
Versa Term 69.
Versa Term Pro 2.X 199.
Select Micro Systems
Map Maker 3.0 221.
Softsync
Accountant Inc. 179.
Softview
Tax View Planner 48.
Software Discoveries
Record Holder Plus 44.
Software Ventures
Microphone II 229.
Survivor Software
Mac Money V. 3.0 64.
Symantec
More 1.1c W/Acta 179.
MAC SQZ 49.
T/Maker
Write Now V2.0 120.
Wordperfect Corp.
Wordperfect Call
Working Software
Lookup 1.0c 30.
Spellswell 42.
Legal or Medical Dictionary 57.

Graphics & Design

3G Graphics
Graphics and Symbols 1 60.

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Print Shop 39.
CasadyWare
Fluent Laser Fonts, Vol. 1-19 42.
Compucraft
Mac Art each 140.
Cricket Software
Cricket Draw 174.
Pict-O-Graph 108.
Deneba Software Presents
Canvas 117.
Canvas 2.0 Desk Accessory 69.
Diehl-Graphsoft
Minicad 4.0 398.
Dubl-Click Software
Wetpaint – 2 Volume Sets
Publishing, Animal Kingdom, Special Occasions, Printer's Helper, Industrial Revolution, Old Earth Almanac, Island Life each set 47.
World Class Fonts, 2 Volume Sets
The Originals, The Stylish, The Giants each set 47.
Foundation Publications
Comic People (Vol.1 Office Days) 25.
Comic Strip Factory 35.
Innovative Data Design
Macdraft 158.
LetraSet
Ready Set Go 4.0 289.
Macromind
Video Works II 117.
Microsoft
Power Point 249.
Olduvai Software
Read-It! 189.
Read-It! Ts 89.
Post-Art 42.
Postcraft International
Laser FX 117.
Shana Enterprises
Fast Forms Construction Kit 79.
Silicon Beach Software
Silicon Press 46.
Super Paint V1.1 79.
Supermac Software
Pixel Paint 289.
Symmetry
Picture Base 1.2 & PB Retriever 59.
T/Maker
Click Art Business Images 29.
Click Art Christian Images 34.
Zedcor Inc
Deskpaint V. 2.0 65.

Creative Education

Bible Research Systems
The Word 169.
Borland
Eureka: The Solver 129.
Bright Star Technology
Alphabet Blocks 31.
Davidson & Associates
Math Blaster 34.
Speed Reader II 48.
Electronic Arts
Business Venture Simulation Call
Great Wave Software
Kids Time 28.
Mindscape
S.A.T./ Perfect Score 47.
Nordic Software
MacKids – Alphabetizer, BodyWorks, PreSchool Disk 1&2, Naval Battle, Word Search, TurboMathFacts, FlashWorks, ClockWorks, EarthWorks, CoinWorks, Lemonade Stand each 28.
True Basic
Algebra, Algebra 2, Calculus, Discrete Mathematics, Pre-Calculus, Probability Theory each 35.
Truestat 40.

Games

Access Software
Leader Board 30.
Accolade
Hardball 24.
Activision
Shanghai 24.
Broderbund
Ancient Art Of War 28.
Jam Session 30.
Maze Wars Plus 30.
Ogre 20.
Bullseye Software
Ferrari Grand Prix 34.
Fokker Triplane 34.
Electronic Arts
Chessmaster 2000 30.
Scrabble 26.
Epyx
Sub Battle 24.
Greene Inc
Crystal Quest 2.2 (Not Copy Protected) 30.
Henderson & Associates
Real Poker 27.
Infinity
Go 28.
Grand Slam Tennis 28.
Microsoft
Flight Simulator 34.
Miles Computing
Down Hill Racer 25.
Fool's Errand 25.
Harrier Strike Mission II 27.
Mindscape
Balance Of Power,Crossword Magic, Deja Vu, Shadowgate each 30.
Trust And Betrayal 31.
Uninvited 30.
PBI Software
Strategic Conquest Plus 34.
Practical Computer Applications
Lunar Rescue 32.
Mac Courses 32.
Mac Golf 36.
Mac Racquetball 36.
Primera Software
Smash Hit Racquetball II 22.
Silicon Beach Software
Apache Strike,Beyond Dark Castle, Dark Castle each 28.
Simulated Environment Systems
Quarterstaff •Requires 1 MB • 27.
Sir Tech
Wizardry 36.
Spectrum Holobyte
PT-109 28.
Falcon 28.
Gato 1.4 28.
Orbiter 26.
Solitaire Royale 19.

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Hayes
Smartmodem 1200 Baud 299.
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Turbo 1200 Baud Modem 99.
Turbo 2400 Baud Modem 199.
Turbo 2400 EC Baud Modem 274.
Turbo 4800 EC Baud Modem 339.
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Worm Media Disk 249.
Nuvotech
Easy View: 14" Monitor - Mac SE 330.
Turbo Net - Appletalk Adapter 6.
Turbo Net 30.
Orange Micro
Grappler Mac* 96.
Relax Harddrives
All makes & models Call
Shiva Corporation
NetBridge 319.
Netmodem 1200 Baud 335.
Netmodem 2400 Baud 449.
Netserial X232 319.
Thunderware
Thunderscan 4.0 199.
U.S. Robotics
1200 Baud Modem 199.
2400 Baud Modem 359.
9600 Hst Baud Modem 799.
Videx
Bar Code Labeler 72.
Timewand 16k 202.
Timewand Manager 398.

Language

Borland
Turbo Pascal 67.
Mainstay
V.I.P. 82.
Manx
Aztec C68K Developers Call
Aztec C68K-Professional Call
Paragon Courseware
Qued 64.
Qued-M 119.
Symantec
Lightspeed C 107.
Lightspeed Pascal 77.
Tml Systems
Tml Data Base Tool Kit 59.
Tml Pascal V2.5 90.
True Basic
True Basic 2.0 59.
Zedcor Inc
Z Basic 4.0 75.

Music

ARS Nova
Practica Musica 94.
Bogas Productions
Studio Session 50.
Library Disks – Heavey metal, Country, String Quartet each 15.
Electronic Arts
Dlx Music Construction Set 2.0 69.
Great Wave Software
Concertware + ... 39.
Concertware + Midi 89.
Impulse
Audio Digitizer 130.
Mark Of The Unicorn
Professional Composer 395.
Professional Performer 325.
Passport Designs
Master Tracks Pro 249.
Passport Midi Interface 97.
Resonate
Listen 65.

Utilities

A. Boradio & Associates
Expressionist 60.
Affinity
AffiniFile 49.
Tempo II 88.
Alsoft
Dsk Express 32.
Font/Da Juggler Plus 38.
Berkley System Design
Stepping Out 2.0 60.
Borland
Sidekick 2.0 67.
CE Software
Calendarmaker Ver. 3.0 29.
Disktop + Laserstatus & Widgits 35.
Quick Keys Ver. 1.1 69.
Central Point Software
Quick Mail Call
Copy II Mac 23.
CompuServe
CompuServe Starter Kit 25.
Electronic Arts
Disk Tools Plus 32.
Fifth Generation
Fast Back 60.
Power Station 35.
Suitcase 35.
Freesoft
Red Ryder 10.3 60.
Greene Inc
Quickdex 33.
Imagine Software
Smart Alarms 34.
Smart Alarms- Multiuser 89.
Kent Marsh
Mac Safe 90.
Mac Master
Fedit + Version 1.07 28.
Fedit + 2.0 35.
Mainstay
Think 'N' Time 59.
MacFlow 110.
MacSchedules 146.
Meta
Design 220.
Olduvai Software
DA-Switcher 30.
Icon-It 45.
Softview
Mac In Use 2.0 45.
Solutions
Smartscrap & Clipper 39.
Super Glue 52.
The Curator 82.
Supermac Software
Disk Fit 1.4 55.
Network Disk Fit 245.
Sentinel 149.
Superspool 4.0 49.
Super Laser Spool- Single User 80.
Super Laser Spool- Multi User 199.
Symmetry
Acta 2.0 37.
Symantec
Inbox 2.0 Starter Kit 210.
Inbox Personal Connection 77.
S.U.M. 62.
Tops, Inc.
Tops (Mac Version) 140.
Tops (Dos Version) 140.
Flash Card (IBM) 185.
Virginia System Software
Roundup! 39.
Williams & Macias
Disk Finder 38.
Working Software
Findswell 1.0b 33.

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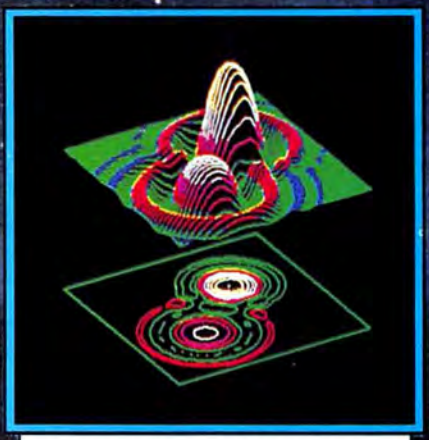
Dennis Wilkins
MacZone Technical Advisor

1. Many of you have the original 128K Mac or the 512K Mac. These Macs have internal 400K drives. To read the new 800K disks it is not necessary to upgrade your Mac, just purchase an external 800K drive. It will read and write to both 400K and 800K disks. To configure the Mac to recognize an 800K disk in the external drive, first boot the Mac with a disk, either 400K in either drive or 800K in the external drive. This boot disk must have System 3.2 and Finder 5.3, or any latter combination thereof, and the Apple Utility File "HardDisk 20". Remember not to put any 800K disks in the internal drive.

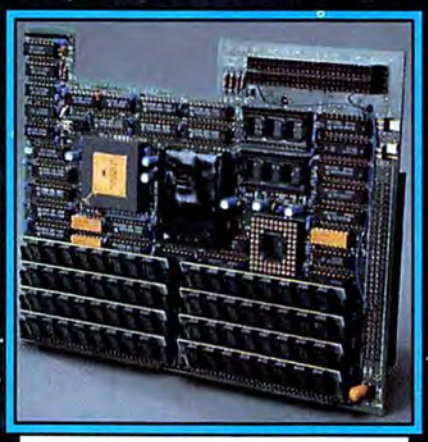
2. This is a good time to clean your floppy drive. After first ejecting any disks, and turning the power off, hold a vacuum cleaner hose, suction side, against the drive opening. Do not put it inside the drive opening. If there is any dust balls collecting inside the drive, this method will safely remove them.



Diehl Graphsoft, Inc. – **MiniCad 4.0** is an extremely powerful 2-D and 3-D design and drafting package with ease of use similar to MacDraw. MiniCad is an affordable alternative to main frame CAD systems. Requires 512+. **398.**



TrueBasic - **TrueBASIC Version 2.0** Offers work spaces, modules, more speed and full Mac II color and co-processor support. Add a new dimension to your program. **59.** Additional graphic Toolkits (3-D, Scientific, Business) **each 35.**



MacPEAK – **Orion Accelerator Board** *Fasten your seat belts!* Using the newest 68020 microprocessor, MacPEAK's Orion accelerator board greatly increases the processing speed of the Mac SE! Easily expands from 1 to 8 megabytes of on-board memory. .. **725.**



5th Generation – **SuitCase** allows for unlimited access to Fonts and DAs – and they don't have to be installed in your system. Comes with an excellent screen saver, *Pyro!* "Foolproof and indispensible," MacUser Magazine. (5 mouse rating) **35.**



Greene, Inc – **Crystal Quest 2.2** is the fast moving, adrenalin boiling sequel to the smash hit, Crystal Raider. Collect all the crystals and avoid all the mines, bullets, and 12 different sort nasties that will be out to get you in 40 different waves. (Color on Mac II) **30.**

Open Here

The SUM Is Greater Than the Parts

Symantec's Turner-Hall division will have taken a mighty leap into the Mac marketplace by the time you read this. At press time they were set to release their *Symantec Utilities for the Macintosh*, or *SUM*. At first glance, *SUM* seems to be a rehash of the old but potent *MacZap*. Appearances are deceiving; *SUM* is a lot more than even the latest version of *MacZap*. The hoary *MacZap* interface has been substantially cleaned up (by the original author, no less — why didn't he do it sooner?) and augmented.

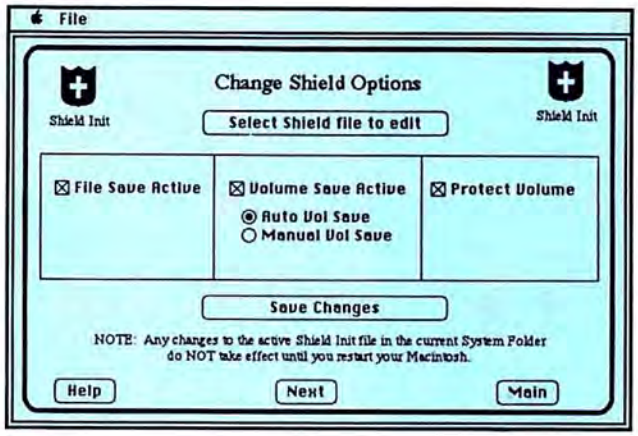
The new parts take a competent and useful program and propel it straight to greatness. The most important new feature is Guardian. This feature, once installed, protects your disks as never before. The demo we saw — and later recreated on our own hard disks — was most impressive. A hard disk, which had Guardian (and its companion, Shield) installed, was erased, using the standard ERASE command. When checked from a floppy disk with a *System*, the hard disk was empty. Then we ran Guardian. In less than 1 minute in one case and less than 2 minutes in the other case, the erased hard disk was restored exactly and completely.

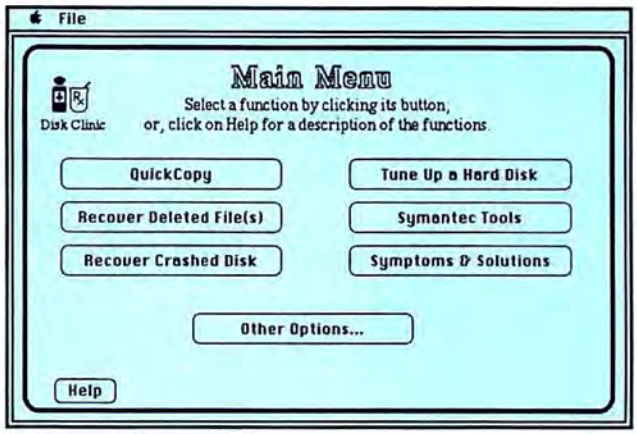
There's a cost for this safety: some rather large invisible files store the state of your hard disk periodically. Since this file takes from 30 seconds to several minutes to write, it's usually updated only when you shut down. A companion file keeps similar restoring information for deleted files, allowing you to quickly recover tossed away files (as long as the space they occupied on the disk hasn't been reused — you have no control over that).

Guardian alone would justify *SUM*'s $99.95 price tag, but there's more. All of the powerful *MacZap* recovery tools are included. They're accessed through a much improved version of Disk Clinic. While we were preparing copy for this issue, a floppy containing the just-edited manuscripts of several articles picked a very bad moment to go on vacation. It suddenly seemed to be no longer there. Several skilled hackers tried, without any luck, to recover the crucial manuscripts. Then one of us remembered he had just been given a beta copy of *SUM*. It was produced, run, and in a flash, all the seemingly lost files were back. *SUM* succeeded in making a deep impression on a normally rather blasé group of hackers.

There's a lot more, but you'll have to wait for our full review (coming very soon) to get all the details. We can tell you that the documentation, the old bane of *MacZap*, has been totally rewritten and is now first-class. If you can't wait for our review, write to Symantec at 10201 Torre Avenue, Cupertino, CA 95014 for more information, or call them at (408) 253-9600.

— Ellen Hirame





DBs from 4D

Acius, the publisher of the powerful *4th Dimension*, is offering a *User Group Database* that contains information about 1,000 Apple II and Mac user groups. The database is designed to be used with their *MiniFans* application. *MiniFans* is a contact/customer tracking application which allows data search and entry, mail merge, label printing, and — for the typing-impaired among us — an algorithm (Soundex) that lets you search names by pronunciation.

You can get *MiniFans* with the user database by sending a request and a $20 check to "Acius RC Car Fund," Acius, Inc., 20300 Stevens Creek Boulevard, Suite 495, Cupertino, CA 95014. Both databases (the user groups and *MiniFans*) can also be downloaded from CompuServe and AppleLink. There's a $20 shareware fee to pay, however (no free lunches), and the radio-controlled cars in the Acius offices have become something of a Silicon Valley legend. Plans are underway for another contacts database; you'll know what it is as soon as we do.

— Louise Kohl

On a Power Trip?

Here's an item you won't see on the 11 o'clock news: The Mac SE power cord has been overthrown in a nonviolent revolution. Replacing the old regime is Kensington's *System Saver SE*. Organizing all the SE's power needs, *System Saver* has been successful in stopping the scramble for power with outlets for two peripherals. With its noise-filtering circuitry and "heavy-duty" surge suppression, it will guard against any further revolution among the powers in your Mac SE. For convenience, the *Saver* has two front-mounted switches, allowing you to run one of your peripherals separately. It also provides extra modem protection. *System Saver SE* is now available for $79.95 through computer dealers across the country. For more info, call (800) 535-4242; from outside the U.S. or in NY, call (212) 475-5200.

— Kristi Coale





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Over a decade ago, Paul Anka and Kodak asked the musical question, "Do you remember the times of your life?" Brilliant Color wants to help you remember with Image Card. The first full-color personal/business card, Image Card is cheap. Cheap in price, that is. You'll just shell out $34.95 for the first 100 cards and then pay only $15 for each set of one hundred thereafter. Using their designs or providing your own graphics, you'll get a photographic card that's 2 inches by 3.5 inches, combining your text with your picture and the computer-generated color art.

To produce these cards, Brilliant Color uses a Mac II and designs within *PixelPaint* and *Color QuickDraw Explorer,* a color drawing application by Brilliant Color. As a final stage in production, they use *HyperCard* XCMDs to merge color backgrounds with the text and color photos.

For the computer graphic artists in the audience, Brilliant Color is welcoming submissions of artwork files for consideration as Image Card designs. You will be compensated on a royalty basis for your work. For more information or to order more cards, contact Brilliant Color at P.O. Box 1103, Palo Alto, CA 94302; (415) 969-6309.

— Kristi Coale

Unraveling Upgrades

As time marches on and Mac models drop by the wayside like so many PC Juniors (sorry, Charlie), a lot of early Mac owners have been left pondering their Mac futures. To help these poor souls make informed decisions — and not incidentally, to drum up some business — Computer Quick, an independent Mac service, repair, and upgrade shop, has produced *The Macintosh Upgrade Book* by Loy Spurlock.

This 52-page booklet provides a wealth of good, basic information on upgrade paths for every Mac from the 128K to the Mac II, and it's ideal for anyone who's thinking about an upgrade but doesn't know a SIMM from a SCSI. In addition to the information you'd expect on memory upgrades, Spurlock's book also offers material on hardware and performance improvements (such as hard disks and accelerator boards), utilities like RAM disks and print spoolers, and protection devices like fans, surge suppressors, and power supplies.

The Macintosh Upgrade Book costs $2.95 (plus $1.05 for shipping and handling), but Dan Paymar, Computer Quick's General Manager, has made a special offer to *MacUser* readers. If you include your Mac's serial number on your order and mention that you read about the *Upgrade Book* in *MacUser,* he'll take one dollar off that $2.95 list price. To get your copy, contact Computer Quick, 14928 Leffingwell Road, La Mirada, CA 90638; (213) 941-7951.

— Russell Ito

Once More, With Painting

Some products start out good and just keep on improving — a trend we heartily endorse. The latest version of *"Draw it again, Sam,"* Aba's four-mouse object-oriented graphics program, is a case in point. Version 2.03 adds a number of new features to the original program, and more is on the way with version 2.1.

Probably the major change in version 2.03 is the addition of fully integrated paint capabilities. There are also new and easier-to-use layer tools and a very useful Info box that allows you to double-click on an object, change its characteristics on the spot, and directly import *MacDraw* and *MacPaint* files. Aba will be sending free updates of *"Sam"* to all users. You should be getting (if you haven't yet) version 2.04, which includes a few minor bug fixes.

Version 2.1 will add a desk accessory that allows you to access the *"Draw it again, Sam"* library and move files to any program that supports the Clipboard.

About the time you read this, Aba Software will be announcing a family of Paint programs and something for the presentation market (both will be demoed at the Boston Macworld Expo in August). You can also expect a high-end Draw program from them sometime in early 1989. For more information, Aba can be reached at 41 Great Valley Parkway, Malvern, PA 19355; (215) 644-3580.

— Louise Kohl

Windows on the Weather

If you've ever stared out a window just to watch the weather and wished you could do the same on your Macintosh, you're in luck. Metacomet Software has teamed up with Accu-Weather to produce *Accu-Weather Forecaster,* a program that lets you tap Accu-Weather's on-line database of the National Weather Service's hourly reports from your Macintosh.

Before using the program, you must register with Accu-Weather in one of three categories: Commercial/Institutional, Educational, or Personal. On-line charges are then assessed according to your category (users in the latter two groups must also pay start-up fees of $75 and $39.95, respectively).

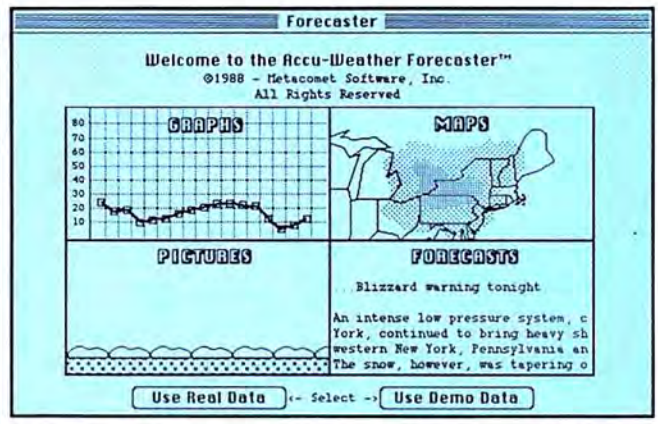
Once you've registered, you can access the database at any time, and because *Accu-Weather Forecaster* lets you predefine the nature of your request, it enables you to download the data quickly, store it, then explore it at your leisure without running up a huge on-line tab.

Amateur meteorologists can have a field day viewing maps of the United States and specific regions that graphically depict temperatures, cloud conditions, barometric pressure, precipitation, and more.

The weather at any one of hundreds of reporting stations can also be studied, and graphs of the day's temperatures, barometric pressure, precipitation, dew point, and other specific conditions can also be generated.

Accu-Weather Forecaster lists for $89.95 and is available from Metacomet Software, P.O. Box 31337, Hartford, CT 06103; (203) 223-5911. And who knows, it might even make staring out the window obsolete.

— Russell Ito



What's the weather in Wexahatchie? *Accu-Weather Forecaster* helps you find out by letting you view the latest meteorological data from Accu-Weather's on-line service.

Wouldn't You Really Rather Have a Demo?

When it comes to shopping for a car, some like it soft — soft sell and software. Software? Well, the SoftAd Group gives you the chance to shop by software with its *1988 Buick Dimension.* And this baby's loaded with extras. From the driver's seat in front of your Mac, you can test drive the 1988 Reatta.

With a click of your mouse, you can put the V-6 engine through its paces. Although it doesn't show you the latest in break-dancing, the Braking Game does test your braking reaction time. In case you're wondering how you might fit two people, suitcases, skis, and a dog into this two-seater, the Seating Game shows you how. Through the Electronic Control Center (ECC), you can listen to the eight-speaker Concert Control System.

Other menus allow you to see how the suspension system and fuel injector work. The sound effects, provided by Bogas Software, depict the engine, fuel injector, sound system, and dog, who barks as you put him in the car. These are great sounds.

Perhaps you're not interested in the Reatta. The disk also includes the rest of the 1988 Buick line, including the Skylark and Country Estate wagons. While you can't run the engine or fuel injection on your Mac with these models, you can check out the standard features, dimensions, technical data, option packages, window sticker, and available purchase plans.

1988 Buick Dimension requires a minimum of 512K of memory and still may cause your Mac SE to crash. You can remedy this by booting right off the *Buick* disk, because it has its own *System* folder. For more information, contact the SoftAd Group at 207 Second Street, Sausalito, CA 94965; (415) 332-4704.

— Kristi Coale



WALTER JEBE II

Just Coasting

This disk won't fit into your Mac, but it's handy all the same. Avoid those unsightly mousepad rings with these unique coasters. Each coaster is a replica of a 3.5-inch disk. The artwork was created on the Macintosh using Adobe *Illustrator.* The coasters come in selected colors and designs and are sold in mixed or matched sets of six for $9.95; volume discounts are available. Business logos or special designs may be ordered with volume purchases (100 sets or more). For orders or more information, contact Publishing Ink., 521 State Street, Glendale, CA 91203; (818) 500-7857.

— Laura Johnson

Applications Now Being Accepted

There's nothing wrong with marching to the beat of a different drummer — unless you're in the violin section. "I was inspired to relearn the violin recently, and I realized that I didn't have a metronome to help me relearn rhythm!" writes Elizabeth Holm of Cambridge, Massachusetts. "Traditional metronomes are expensive — a software metronome would be great. A slide bar could set the tempo, and an animated 'windshield wiper' arm or maybe even a little conductor could beat it out. The tone of the beat could be set to match the key of the music one is playing."

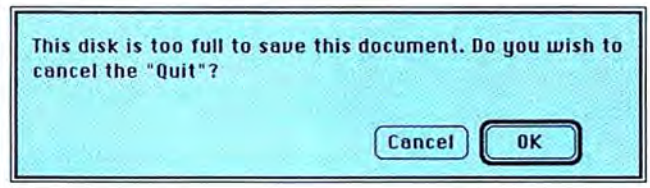
Some music programs have metronome features, but we bet there's a virtuoso hacker out there who could whip up a simple shareware MacMetronome in no time. (If it was *really* little, would it be a metroggnome?)

Send your application brainstorms to ANBA, *MacUser,* 950 Tower Lane, 18th floor, Foster City, CA 94404. If we publish your idea, you'll get $25 and a chance to inspire greatness.

— Jon Zilber

DIALOG BOX OF THE MONTH

This dialog box from *Ready, Set, Go!* 4.0 is our candidate for the Henry Kissinger Obtuse Prose Award (a.k.a., The Kissy). It came to us from Phil Skogland of Racine, Wisconsin, and it proves that confusing prose is not limited to government service.



"I loaded a file from a full disk, made some minor additions, and went to Quit. I was asked if I wanted to save my changes, and I clicked Yes. That's when this mystery appeared.

"I said to myself, 'Sure, let's cancel the Quit,' so I clicked Cancel — and zipped to the *Finder!* After trying again, I realized that this time Cancel meant cancel the cancellation of the Quit, while OK, which usually means execute Quit, actually meant cancel Quit."

Everybody still with us? We recreated Phil's situation, and sure enough, the same thing happened. Letraset may get points from grammarians for correctness, but having proper grammar with the syntax of Henry Kissinger isn't much to cheer about. Phil, on the other hand, does have something to cheer about, because we've just sent him a check for $25 and our hopes that he never comes across another Kissy candidate again.

If you'd like to join in the fun, save a copy of your screen in *MacPaint* format (Command-Shift-3) on disk, so we can reproduce it here at the office. Send your submissions to Dialog Herb c/o *MacUser,* 950 Tower Lane, 18th floor, Foster City, CA 94404.

— H.D. Plant

MISS NG PIEC S

If you're looking for missing features, you can stop rummaging through your milk carton pictures and start here. This month's *Miss ng Piec s* chart takes a look at databases and comes to us from Robert ART Morgan.

And if knowing all this missing info fills a void in your life, maybe you should subscribe to his newsletter. You can sign up for a year by sending $39 to Ramifications Unlimited, P.O. Box 619, Dept. MU, Julian, CA 92036. And if there are any feature comparisons you'd like to see listed in this space, write us, and we'll pass your letters on. You can reach us at *MacUser,* 950 Tower Lane, 18th floor, Foster City, CA 94404.

Database Update — What's Missing?

✓ = missing feature ? = feature partially or awkwardly implemented (no mark is good news) prog = requires programming

	Provue Over VUE 2.1d	Nashoba File Maker+ 2.1	Borland Reflex Plus 1.01	Odesta Double Helix II DH2.0r37d	Acius 4th Dimen. 1.0.4	Ashton-Tate dBASE Mac 1.01	Blyth Omnis 3 Plus 3.25	Fox BASE+ 1.0	Nantucket McMax 1.0
On-Line Help	✓				✓		✓		
Auto Save	✓					✓		✓	✓
Recovery Logging	✓		✓					✓	✓
Multiuser File Access	✓	✓	✓			✓		✓	✓
Procedural Language	✓[1]	✓[1]	✓						
Calls to Pascal or C Code	✓	✓	✓	✓			✓	✓	✓
Read/Run dBASE III Code	✓	✓	✓	✓	✓	✓	✓		
Create Custom Menus	✓	✓	✓	?[2]	prog		prog	prog	✓
Runtime Version Available	✓	✓	✓						
Multilevel Passwords	✓	✓	✓		prog			prog	prog
Field Entry Box Auto "Grow"	?		?[3]	?[3]	?[3]	?	✓	prog	prog
Field Names With Spaces	✓		✓				✓	✓	✓
Clairvoyance[4]		✓	✓	✓	prog	✓	prog	prog	prog
Default Values in Fields	✓							prog	prog
Carry Forward Fields			✓		prog		prog		
Duplicate Structure				?[5]					
Delete Multiple Records					prog		prog		
Modify Multiple Records				prog	prog		prog		
Look-up Tables	prog			prog	prog	prog	prog	prog	prog
Subfiles or Repeating Fields	✓			prog			prog	prog	prog
Relate Multiple Files	✓	✓		prog			prog	prog	prog
Second Search Only in Subset		✓	✓		prog		prog	prog	prog
Sort Summary Records		✓	✓	✓	prog		prog	prog	prog
Create Bar Charts of Data	[6]	✓	✓	✓	[6]	✓	✓	✓	✓
Multiple Views of Data	?							prog	prog
Vary Fonts on Screen	✓						✓		✓
Vary Fonts on Reports	✓						✓		✓
Store Graphics as Data	✓		✓				✓		✓
Use Graphics as Background	✓			✓			✓		✓
Tools for Boxes & Lines	✓		✓	?			?	✓	✓
Duplicate Forms	✓		✓						
Page Setup Saved w/Report	✓	?				✓		✓	
On-screen Color Support	✓	✓	✓	✓			✓		✓
Import Records	1:10	6:00	2:00	4:40	12:06	n/a	2:19	:09	:14
Sort on One Field	:05	:54	:38	4:49	2:00	n/a	:21	:20	:11
Size of Data File	65K	191K	98K	259K	4K	n/a	174K	104K	113K

1 *Only limited macros or scripting.*
2 *Can only create menus to select views, not for executing procedures.*
3 *Data exceeding size of box is accepted but not displayed.*
4 *Anticipates unique text strings during data entry.*
5 *Some portions can't be duplicated between relations, much less between files.*
6 *Limited; you're better off exporting to Cricket Graph.*
7 *Only two views.*
8 *This is the time required to set up an index and view the result, since no sorting is allowed. File contained 1500 records, 57 characters in length, with 5 fields containing mixed data types (Times in Minutes:Seconds)*

Special thanks to Cyrus D'Amato, New Canaan, CT; Will Tompkins, La Jolla, CA; Steve Salzman, San Rafael, CA; and Roland Burt, Del Mar, CA, for their help.

Glaring Omissions

This is a summary of all the things that are most obviously absent or poorly implemented in various software products.

Provue OverVUE: Font choices — can only view records in 9 point Geneva; can only print in draft quality on ImageWriter. Procedural language — simple macros possible, but no way to stop once started. Graphics of any kind.

Nashoba FileMaker Plus: Auto Save override — make a back-up copy before you start making changes to structure or forms.

Odesta Double Helix II: Debugging tools for procedures.

Acius 4th Dimension: Index for manuals — though you can order a disk from them with an "after thought" index. Acceptable speed on anything but a Mac II.

Ashton-Tate dBASE Mac: Multiuser file access. Acceptable speed on even a Mac II.

Blyth Omnis 3 Plus: Font choices. Graphics of any kind.

Nantucket McMax: Font variation on screen and forms.

Hot Stuff

This is a summary of features that set each apart from the rest. You couldn't say they are missing from the others since they go beyond the norm.

Provue OverVUE: Excellent data entry options such as Clairvoyance (where it anticipates your entry). Graphs of data without programming.

Nashoba FileMaker Plus: Graphics are a data type. Fields grow dynamically with data.

Odesta Double Helix II: Graphics can be stored as data. VAX-compatible version available. Multiple views of data on screen simultaneously.

Acius 4th Dimension: Has a Pascal-like programming language that can do just about anything, including dialing up a remote computer through the modem port to operate on a database file. Can connect to external code written in C, Pascal, etc. Largest amount of drawing tools for designing forms.

Ashton-Tate dBASE Mac: External calls to object code and HyperCard XCMDs.

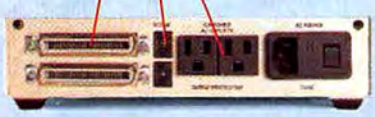
Blyth Omnis 3 Plus: Excellent for transaction-based applications. Any part or all of a structure can be transferred between applications.

FoxBASE+/Mac: Graphics stored as data. Blinding speed.



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It's removable

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UPDATES

Programs, like wine, often improve with age. To get the most out of your programs, you should be using the most recent versions. Here's a list of the current version numbers (as of press time) of many popular programs. The version number of a program can usually be found by running the program and checking the ABOUT... item at the top of the Apple menu.

Apple *System* software is special. Generally, and unless you have a 128K Mac, you should be running the latest System software. (128K owners should continue to use *System* 2.0 and *Finder* 4.1 and 512K, 512KE, and XL owners should stick with *System* 3.2 and *Finder* 5.3.) The latest Apple *System* software is available free from most user groups, national on-line services and local BBSs. The deluxe version (four disks, boxed and well-documented) can be purchased through Apple dealers for $49.95, not a bad deal considering what's included: *Finder* 6.0, *System* 4.2 or 4.3, and the long-awaited *MultiFinder* 1.0. As information on *MultiFinder* compatibility becomes available, we'll keep you informed.

All programs listed here are HFS compatible. The meanings of the codes in the right column are as follows: CP or NCP, copy protected or not; //, programs we have found to be Mac II compatible (not yet a comprehensive list); and S, shareware (try before you buy software). Changes and new listings are shown in **bold.** Compatibility is sometimes in the mind of the beholder. Programs that are listed as Mac II compatible may not perform 100 percent of the functions they offer on other Macs, nor do they necessarily take full advantage of the Mac II.

A.A.I.S. Prolog	M1.15	NCP
Acta	2.0	NCP,//
AMS General Ledger	2.08	NCP
AppleShare	1.1	NCP
Accountant, Inc.	2.1	NCP,//
Aztec C	3.4b	NCP,//
Backgrounder	1.2	NCP,//
Back to Basics	1.03	NCP
Balance of Power	1.03	CP
Bulk Mailer	3.0	NCP,//
Business Filevision	1.1	NCP
CalendarMaker	3.0	NCP,//
Capture	1.1	NCP,//
Chart	1.02	NCP
Chooser	3.3	NCP
ClickArt Effects	1.01	NCP,//
Clipper	1.01	NCP
CloseView	1.0	NCP
Cognate	1.5	NCP,//
ColorChart	1.3	NCP
Colorizer	1.1	NCP,//
ColorMate	2.1	NCP
ColorPrint	2.03	NCP
Comic Strip Factory	1.6	NCP,//
Comic Works	1.0	NCP,//
ConcertWare+	4.0	NCP,//
ConcertWare+MIDI	4.0	NCP,//
Control Panel	3.3	NCP,//
Copy II Mac	7.1	NCP
Copy II HD	7.1	NCP
Cricket Draw	1.1	NCP,//
Cricket Graph	1.2	NCP
Curator	1.04	NCP,//
DA Handler	6.0	NCP,//
Deluxe Music Construction Set	2.0	CP
DesignScope	1.14	NCP,//
Disk Express	1.10	NCP
Disk First Aid	1.4	NCP
DiskFit	1.4	NCP,//
DiskInfo	1.45	NCP,S
Disk Ranger	3.1	NCP
Disk Tools Plus	1.01	NCP,//
DiskTop	3.0.2	NCP,//
Dollars & Sense	4.0	NCP,//
Double Helix II	r40	NCP,//
Draw it again, Sam...	2.03	NCP,//
Easy Access	1.0	NCP,//
Easy3D	1.01	NCP
Edit	2.1	NCP
Excel	1.06	NCP,//
ExperCommon Lisp	2.2	NCP
ExperLisp	1.5	NCP,//
ExperLogo	1.1	NCP
EZ Draft	2.0	NCP,//
FastBack	1.02	NCP,//
File	1.05	NCP
Filemaker Plus	2.1	NCP,//
Finder (MFS-128K)	4.1	NCP
Finder (HFS)	6.1	NCP
Findswell	1.0b	NCP,//
FlashBack	1.6	NCP
Flight Simulator	1.0	CP
Fokker Triplane	1.0	CP
FONTastic Plus	1.4	NCP,//
Font/DA Mover	3.8	NCP
Fontographer	2.3	CP
Forecast	2.0	NCP,//
Frame Mac	1.1	NCP,//
FreeTerm	2.0	NCP,//
FullPaint	1.0	NCP
Gato	1.42	CP
General	3.3	NCP,//
GeoQuery	1.01	NCP,//
Glue	1.04	NCP
GraphicWorks	1.13	NCP
Hard Disk 20	1.1	NCP
Hard Disk Utility	2.0	NCP
HD Backup	1.0	NCP,//
HD SC Setup	2.0	NCP,//
HFS Backup	1.1	NCP
HFS Locator Plus	2.0	NCP
HyperCard	1.1	NCP,//
Illustrator	1.0	CP/NCP,//
ImageWriter	2.7	NCP
ImageWriter, AppleTalk	2.7	NCP
InBox	2.0	NCP
Insight Expert Accounting	2.01	NCP,//
Installer	2.6	NCP,//
inTalk	3.0	NCP,//
Jam Session	1.1	CP,//
Jazz	1A	CP
JustText	1.1	NCP
Keyboard	3.3	NCP,//
Key Layout	2.3	NCP,//
Laser Author	1.3	NCP,//
Laser Prep	5.2	NCP
LaserShare	1.0	NCP
LaserSpeed	1.5	NCP,//
LaserStatus	2.0	NCP
LaserWriter	5.2	NCP
Laser Writer IISC	1.1	NCP,//
Layout	1.3	NCP,S
Legal Billing	1.72	NCP,//
Legal Billing II	2.39	NCP,//
Lightspeed C	2.01	NCP
Lightspeed Pascal	1.0	NCP
Listen 2.0	2.1	CP,//
Lode Runner	1.0	CP
Lookup	1.0c	NCP,//
Mac3D	2.1	NCP,//
MacASM	1.2	NCP
MacBillboard	4.01	NCP,S
Mac C	5.0	NCP,//
MacCalc	1.2	NCP
Mac Daisy Link	1.04	NCP,//
Mac Disk Catalog II	2.1C	NCP
MacDraw II	1.0	NCP,//
MacDraft	1.2b	NCP,//
MacFlow	2.03	NCP,//
MacFortran (all)	2.3	NCP,//
MacGolf	3.0	CP,//
MacInTalk	1.1	NCP
MacLabeler	2.2	CP
MacMoney	3.01	NCP,//
MacMovies	1.02	NCP
MacNosy V2	2.8	NCP
MacPaint	2.0	NCP,//
MacPalette	1.0	CP
MacPascal	2.1	CP
MacProject II	1.0	NCP,//
MacProof	3.0	NCP
MacSafe	1.08	NCP,//
MacSchedule	1.0	NCP,//
MacScheme+ Toolsmith	1.51	NCP,//
MacServe	2.3	CP,//
MacSpec	1.3	CP
MacSpin	1.1	CP
MacSpool	2.2	NCP
MacTerminal	2.2	NCP
MacTools (MFS/HFS)	7.1	NCP
MacWrite	5.0	NCP,//
Mac Zap	5.0	NCP,//
MailManager	1.0	CP
Map	1.1	NCP,//
MapMaker	3.0	NCP,//
MDA	2.0	NCP,//
MDS	2.0	NCP
Measure Test	12.7	CP,S,//
MenuFonts 2	2.0	NCP,//
Megamax C	3.0	NCP
MicroPhone	1.1	NCP,//
Micro Planner Plus	5.8b	NCP
MindWrite	1.1	NCP,//
miniWriter	1.4	NCP,S
MockPackage+	4.3.4	NCP,S
MORE	1.1C	NCP,//
Mouse	3.3	NCP,//
MPW	2.0b	NCP
MS BASIC	3.0	NCP
MS BASIC Compiler	1.0	NCP
MS Fortran	2.2	NCP
MS Works	1.1	NCP,//
MultiFinder	6.0	NCP,//
Multiplan	1.11	NCP,//
MusicWorks	1.1	CP
myDiskLabeler	2.11	NCP,//
'Ncryptor	2.0	NCP,//
Neon	2.0	NCP
Omnis III Plus	3.25	NCP,//
OverVUE	2.1e	NCP,//
PackIt III	1.3	NCP,S
PageMaker	3.0	NCP,//
Parameter Manager	1.092	NCP
Performer	2.31	CP
PictureBase	1.2	NCP
Plains and Simple	4.1	NCP,//
PLP	2.0	NCP,//
PowerStation	2.3	NCP,//
Print Monitor	1.2	NCP,//
Professional Composer	2.1	CP
Profit Stalker II	1.3	NCP
Programmer's Online Companion	2.0	NCP,//
Project Billing	3.0	NCP,//
QUED/M	2.04	NCP
QuicKeys	1.1	NCP,//
QuickWord	2.0	NCP,//
Rags to Riches	3.0	CP,//
Ragtime	2.01	NCP,//
Read-It!	1.1	NCP,//
Ready, Set, Go!	4.0a	NCP,//
Record Holder	2.1	NCP
REdit	1.2	NCP
Red Ryder	10.3	NCP
Reflex Plus	1.01	NCP,//
ResEdit	1.1b7	NCP,//
Sargon III	1.0	CP
Scoop	1.01	NCP,//
Scrapbook	174K	NCP,//
SideKick	2.0	NCP
Silicon Press	1.1	NCP
Slide Show Magician	1.3	CP
Smartcom II	3.0A	NCP,//
SmartScrap & The Clipper	1.03	NCP,//
Sound	3.3	NCP,//
SoundCap	4.4	CP
Space Edit	2.0	CP,//
SpellNow	1.0	NCP
Spellswell	2.0f	NCP,//
Startup Device	3.3	NCP,//
StatView 512+	1.1	NCP
StatWorks	1.2	NCP,//
Stella	1.3	CP,//
Stepping Out	2.0	NCP,//
Straight Talk	2.08	NCP,//
Studio Session	1.4	CP
Suitcase	1.2.1	NCP,//
SuperGlue	1.03	NCP,//
SuperPaint	1.00	NCP,//
Switcher	5.1	NCP
System (MFS-128K)	2.0	NCP
System (HFS)	6.0	NCP
Telescape	1.0	NCP,//
Telescape Pro VT 100	1.1	NCP
Tempo	1.2	NCP
Textures	1/01	NCP,//
Think 'n Time	1.1	NCP,//
ThinkTank	2.0	NCP,//
Thunder!	1.0.1	NCP
Thunderscan	4.0	NCP
TML Pascal	2.01	NCP
TMON	2.8	NCP
Top Desk	3.0	CP
TOPS	2.0	NCP,//
Trapeze	2.0a	NCP,//
Turbo Download	2.1	NCP,//
Turbo Maccountant	2.0	NCP,//
Turbo Pascal	1.1	NCP,//
Type Now	1.0	NCP,//
VersaTerm	3.0	NCP
VersaTerm Pro	2.0	NCP
VideoWorks II	2.0	NCP,//
VIP	2.5	NCP,//
Widgets	3.0	NCP
Word	3.02	NCP,//
Write	1.0	NCP,//
WriteNow	1.0	NCP,//
XPress	1.1	CP/NCP,//
ZBasic	4.0	NCP

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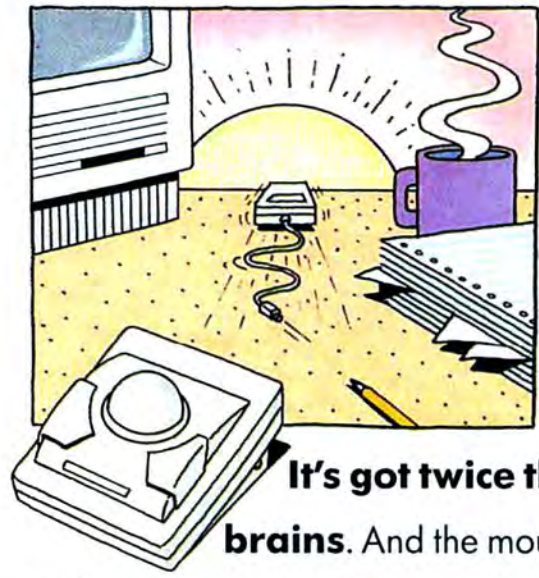
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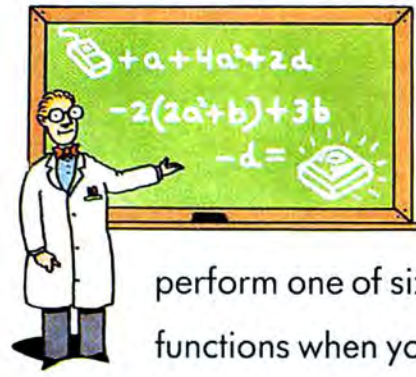




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— Kristi Coale



RUMOR MANAGER

Rumors of the the demise of the Rumor Manager have been greatly exaggerated. (Applause.)

Apple recently hired several ex-IBM and ex-Microsoft interface designers. Their task: Make the next Mac operating system — the one due in 1990 — more palatable to MS-DOS users while keeping it distinctly Mac-like (and unlike *Windows* and *Presentation Manager*). Talk about "look and feel!"

Many developers are unhappy about the ease with which end users can change their default color choices on Mac II programs. These developers have often spent considerable time and effort getting the color "just right." They're now looking for some better and easier ways to lock in colors. Apple is helping.

Expect no fewer than 12 (yes, one dozen) CD-ROM players' announcements or actual introductions at the August Mac show. We think we found them all, but if we missed any, well, then there'll be more than 12 (but not less).

Presentation Technologies' new Montage family of products will kick off with a film recorder at Macworld in Boston. Montage products support both IBM and Macintosh environments — which looks like a trend. In the not-too-distant future, look for a color thermal transfer printer, a RISC-based graphics manager, and a color PostScript processor. That ought to keep 'em busy for a while.

Presentations seem to be the next Macintosh niche. Look for new divisions and products from unlikely (but welcome) companies.

The laptop Mac is much closer (and isn't Laguna — good try, folks). List price of $4,500 to $5,000, 40-megabyte internal hard disk, built-in 2400-baud modem, no expansion slots, NO battery (due to weight considerations), excellent screen with better-than-SE resolution, 68000 CPU, two SuperDrives (if they're ready; two 800Ks, if not), and, very sad to say, between 12 and 14 pounds overall weight (too heavy by half). Pick it up at your dealer the second or third week of January 1989 (right after the show).

The digital analog tape (DAT) back-up units from Hitachi and Toshiba seen at spring Comdex have SCSI connectors. Both companies say they have no plans to offer a Mac-compatible version soon, but they are selling the engines to others. Expect to see DAT back-up for the Mac between now and the end of the year. Expect 1-gigabyte tape capacities and prices of at least $6,000 per unit until more engines are available.

There's been some talk that *Wingz*, the eagerly awaited new spreadsheet from Informix, may end up being bundled with *A/UX* by Apple. (It was unclear whether Apple is actually aware of this, however.)

Vertical market software prices are about to take a serious jump — even those that are already close to astronomical. The reason is that Apple is clearly serious about promoting products in many special niches. And the "Apple Seal of Approval" is like money in the bank. The vertical-market developers plan to really cash in. In particular, look for price increases in the legal, medical, and desktop engineering markets.

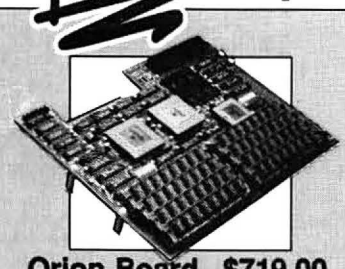
The low-end Mac discussed in June's *MacUser* is several steps closer to reality. Some of the crucial software problems mentioned have been solved. And the results have been shown to some outside movers and shakers, including financial analysts, corporate purchasers, user group people, and, yes, journalists (well, at least us). It's real hot stuff. And, surprisingly enough, these sneaks were not run by Apple marketing or PR but were done informally by engineering.

Dedicated file servers made an early splash in the Mac market, but interest trailed off rapidly when it was discovered that they didn't work very well. Then *AppleShare* and *TOPS* came along, seemingly ending the need for a special dedicated server. Now some engineering and legal workgroups are testing — and, we hear, really liking — a new breed of vastly more powerful dedicated file servers. They're blindingly fast (they use 68030s) and very efficient and reliable. They all have automatic, built-in back-up and should be competitively priced. Not cheap, mind you, but fairly priced. The reason for the competitive pricing is simple. There are four of these units (from four different manufacturers!) now in final testing. All are expected to be released this fall, most likely within weeks, if not days, of each other.

SE street prices have been dropping recently — one recent month had a 5.1-percent decline. Combine these consistent drops with Mac Plus sales that are as much as 70 percent below last year's figures to comprehend what we've been hearing — the end of the Plus, substantial list price cuts for the two current SE models, and the introduction of at least two new SE models. One of the new models will be the SE40, which is a standard SE with a 40-megabyte internal hard disk. (The 20-megabyte version will remain available, although we can't imagine why.) The other model will be the SEA, which is a basic SE (with or without hard disk) with a built-in, Apple-designed and -manufactured, 25-MHz 68030 accelerator (if fast 68030s are available in time; otherwise, it'll start out as a fast 68020 — unlikely — or a slow 68030 — very likely). The accelerator is something of a kludge, since the machine will still use the old motherboard, with the 68030 on a daughterboard. There's supposed to be plenty of room to use the expansion slot as well. We hear that the test units get real crowded and warm. Finally, if a very hush-hush deal Apple is trying to consummate with some Far Eastern chip brokers goes through, you'll see the SEM — an SE with your choice of hard disk (as long as you pick either 20 or 40 megabytes) and 4 megabytes of memory. Apple being Apple, expect to pay dearly for an SEM.

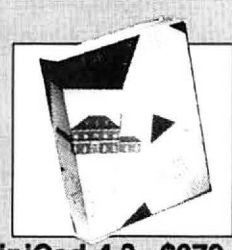
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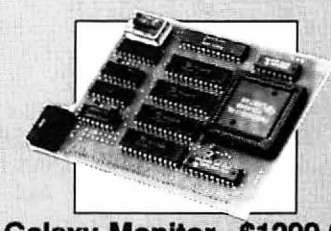
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CLARIFICATIONS

Obfuscations obviated, ambiguities arbitrated, and errors eradicated.

ITTY BITTY MISTAKE

Our June '88 article "Itty Bitty MIDI" incorrectly endowed the Apple IIgs with a MIDI interface. MIDI-wise, the Mac and the Apple IIgs are in the same boat; neither has a built-in MIDI interface. Thanks to Barry Brown of Santa Barbara, California for catching this one.

PERIPHERAL LAND PROBLEM

In the fact sheet accompanying the MacUser Labs report on large hard disks in our June issue, we incorrectly stated that inserting the utilities disk for the PL140 Turbo would reformat your internal hard disk without warning. After retesting, we found that the Peripheral Land software *does*, in fact, warn you before reformatting. And it will not allow you to format any other manufacturer's hard drive — inadvertently or on purpose. There *is* an ambiguity in the manual which may have led users to set both their internal and external drives to the SCSI ID 0; this has since been amended. Our apologies for this error.

PCPC IS OKOK

In our June '88 "Big Hard Disks" feature, the entry for PCPC's IHD 144 disk drive in the chart on page 135 was erroneous. (Somewhere in the production process, input/output errors garbled the facts.) The IHD should have had check marks under Formatting, File Utilities, Copy Utility, Back-Up, Spooler, Show SCSI ID, and Phone Support. The Manual was rated as Good and the Installer classified as Intelligent. The IHD does not have partitioning. Our thanks to PCPC Product Manager Ted Cheney for alerting us to these errors.

CASE OF MISTAKEN IDENTITY

In a letter to the editor in our May '88 issue, a reader incorrectly identified a facial composite program he glimpsed on an episode of the "MacGyver" television program. Mike Inay of Visatex informs us that the software in use was his company's *Compusketch*.

MAGIC 150 OR FIGHT

In our MacUser Labs report on mass storage in the June issue, the MagicDrive 150 from MacProducts USA got somewhat short shrift. A typographical error subtracted 45 megabytes, making it the MagicDrive 105. This, in turn, affected the price per megabyte, which actually works out to a very low $12.66, rather than $16. In addition, the MagicDrive has a 25-pin (not 50-pin) connector and an embedded SCSI terminator, and the SCSI ID is changeable with software. Thanks to John Kinnaird at MacProducts USA.

The obvious power of Great Plains



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Here Today, Gone to Maui

"Book him, Dano: murder one." While no one will be arrested for playing it, *The Maui Game,* a board game by Millenium Productions, is very arresting. At least it's more fun than "Hawaii Five-O" reruns. Just invite a few friends over, down some Blue Hawaiians (one's more than enough for me, anyway), and put on some records from your Don Ho collection. The object of the game is to collect all six Island Cards and to be the first player back at the airport. Through this rigid testing, the game did not crash, though Don Ho did wear on us after a time. *The Maui Game* was created on the Mac Plus. All text objects, graphics, and topographic details of the board were done in *Illustrator. ThunderScan* was used to digitize the original map and prepare it for *Illustrator.* Once the map for the board was completed, People's Publishing used *ColorHelper* and *ColorCutter* to add color and to resize the art. All text was written, formatted, and laid out in *ReadySetGo!* 4.

The Maui Game sells for $19.95 plus $3 for shipping and handling. To order, send check or money order to Millenium Productions, 2679 University, Eugene, OR 97403; or call (800) 543-7119.

— Kristi Coale

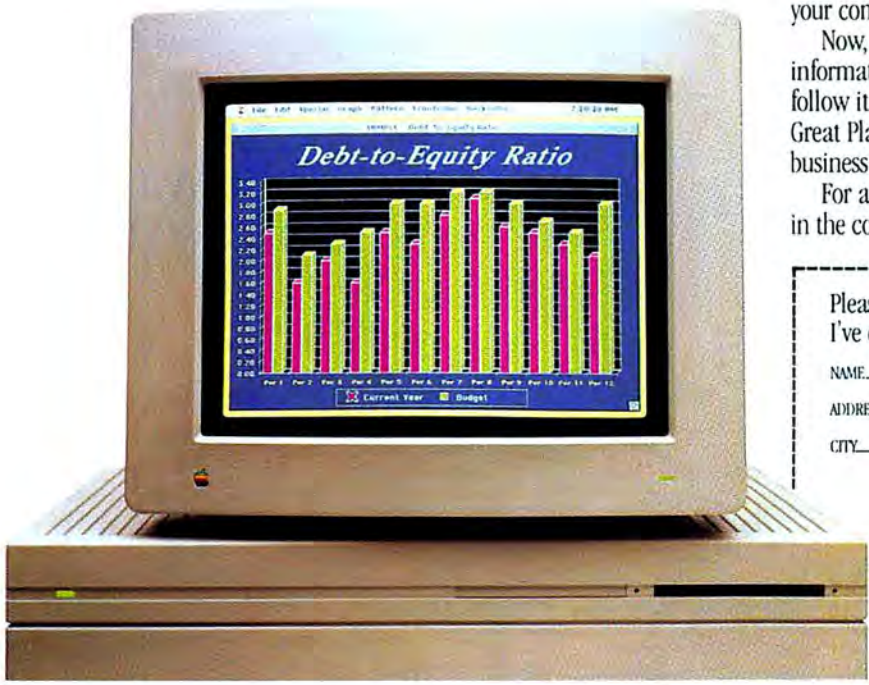
BUG OF THE MONTH

Does a bug in *Works* make it *Doesn't-Works?* Okay, okay, so that may be a bit harsh, but Robert Soule of Alexandria, Virginia was plenty bugged with Microsoft for including it in version 1.1, and with us for not catching it earlier. Well, Robert, we finally caught up with you, so now there's no one to blame except you know who.

The bug works (or doesn't work as the case may be) like this: Type a column of words, select one of them, type over the selected word and hit the Down Cursor key. What happens next is the old disappearing act: As you continue hitting the Up and Down Cursor keys, the selected word begins vanishing one letter at a time. Continue doing this long enough and you'll eventually end up with several insertion points on-screen! Robert's experiences with this phenomenon have gone even further, because he says that when he's tried deleting those extra I-bars, he's often gotten the big bomb. That didn't happen to me, but the sight of three insertion points was enough to win Mr. Soule a $25 check. If you've run into any interesting bugs, let us know. Send to Bugsy c/o *MacUser,* 950 Tower Lane, 18th floor, Foster City, CA 94404. And please let us know your *System* and *Finder* versions, hardware, and any unusual DAs you may have installed.

— H.D. Plant

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by Robert R. Wiggins

G.O.D.

The Macintosh has made it as a business computer. The Macintosh II, with its expandable slots allowing cards like MS-DOS coprocessors, was the last push needed to get the Mac almost universal corporate approval. The connectivity solutions constantly being introduced and improved upon also played a major role in the Mac's growing acceptance. But now the same connectivity solutions that helped make the Mac a corporate success are tempting companies to make some big mistakes and putting their critical corporate data at risk.

It started simply. Companies wanted to use their Macintoshes as terminals to access data on their mainframes and minicomputers. With solutions like EtherNet, IRMA, MacMainframe, the Netway 1000A, and others, this quickly became easy to do. Other enabling technologies such as *MacWorkstation*, *FrontEnd*, and *CL/1* have made it even easier to use the Macintosh interface in making mainframes more accessible. This was all to the good. Without these solutions, many companies could not accept the Macintosh as a true business computer. But many of these solutions also made bulk data transfer between Macintosh and mainframe simple as well, and while this is desirable, it is where the potential for trouble begins.

Mainframes have been around for many years, and some excellent techniques and practices have arisen to protect a major corporate asset: data. The accuracy of the information in most mainframe databases is critical for the survival and prosperity of the company that owns it. Many, many companies would face disaster and ruin were their databases to be damaged or destroyed. Consequently, there are people in most companies charged with protecting this critical data and guaranteeing its integrity.



DAVE JOLY

There are database administrators, who watch over the databases to ensure internal consistency and who stand ready to restore and repair damaged databases. There are storage systems managers, who are responsible for the physical storage devices and the data they contain. There are operations managers, who see to it that all data is backed up on a regular basis. In most companies, these various groups report to different managers, providing a system of checks and balances.

Collectively, these people function as Guardians of Data (G.O.D.). Most computer users in the company don't even know they exist. But when the computer crashes or there's a power failure, flood, or any kind of problem, the terminal users know that when they can get onto the system again, all their data will be there. The G.O.D. squad will have worked its magic behind the scenes, and everything will be as it was before the problem. With the sophisticated mainframe database management software that is available, it is often possible to restore a database to its condition at the exact instant of failure, including transactions that were in progress at the time of failure. Many companies have detailed disaster recovery and contingency plans for use in the event of a catastrophe, and they keep copies of their critical data stored off-site as insurance against disaster. The G.O.D. squad stands prepared for almost every possibility.

The Macintosh, on the other hand, has no G.O.D. There is no squad of people committed to making back-ups of your hard disk. It's your responsibility. You have to do it, with the limited tools at your disposal. No matter how careful and cautious a person you are, there is just no way to ensure the validity of the data on your disk. There has been progress in this area, to be sure, with better and easier-to-use back-up programs (like *DiskFit* and *Redux*), more powerful database software with recovery utilities (like *4th Dimension*), software that automatically saves your work periodically (like *FullWrite Professional* and *WordPerfect)*, and even disk recovery programs (like *Symantec Utilities for the Macintosh* and *Fedit Plus*). But it will be many years before the Macintosh can offer the same kind of data recovery that a mainframe system can.

So when taking advantage of the improved connectivity solutions and enabling technologies, make the mainframe the data repository. Use the Macintosh where it excels, as a graphic and intelligent front-end, but update and store the data on the mainframe or minicomputer where the G.O.D. can watch over your data and keep it safe. When you want to use the Macintosh to prepare reports, pull the data you need down from the host computer. But don't keep it on the Macintosh.

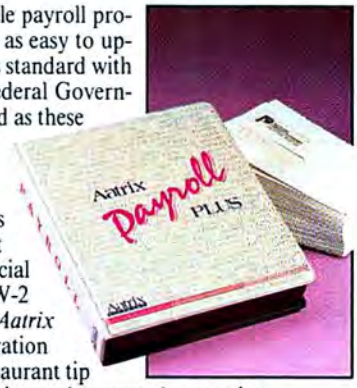
The Mac has its strengths, and the mainframe has its different ones, so

Programs & Peripherals



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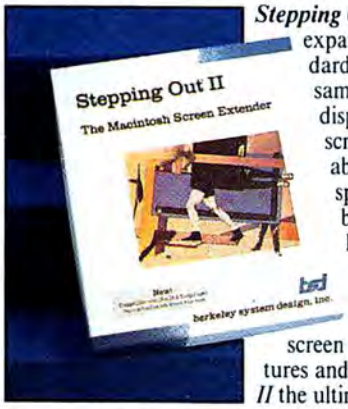
New Turbo Mouse by Kensington



Here is the best reason around to retire your mouse, the ***New Turbo Mouse*** from Kensington. Twice as fast as a regular mouse, while taking up half the space. When rolling the ball slowly, you can attain 200 CPI precision. Roll it quickly and you'll fly across even the largest "Big Screen". It uses half the space of the normal mouse, and since it doesn't move all over your desk, it's at home amidst a sea of papers as well as an empty desk. One of the mouse buttons operates like a standard mouse button, while the other is a "Click Lock". You can also program your mouse to perform one of six time saving functions when you click both of the buttons at once.

New Turbo Mouse **115.**

Stepping Out II by Berkeley System Design, Inc.



Stepping Out II is a program designed to expand the capabilities of any standard Macintosh display to give it the same feel and features as a full page display. Now you can choose the screen size which is most comfortable for you. Working with large spreadsheets and full page layouts becomes easy since you are no longer limited by small windows and slow scrolling. For detail work on small areas you can enlarge any portion of the big screen up to sixteen times. Handy features and ease of use makes *Stepping Out II* the ultimate viewing tool for any Mac.

Stepping Out II **54.**

Desk Accessory Programs

Affinity Microsystems Tempo II	89.	**Imagine Software**	
AffiniFile	46.	Smart Alarms & Appointment Diary	35.
Borland Sid±Kick V2.0	59.	Multi-User Appointment Diary	
Cortland		with Smart Alarms	85.
Top Desk	32.	**Solutions, International**	
Greene, Inc.		SmartScrap & The Clipper	35.
QuickDex 1.4A	32.	**Symmetry** HyperDA *(Req. 512K)*	38.

Languages

Apple Computer MacPascal	99.	**Mainstay**	
Borland Turbo Pascal	65.	V.I.P. *(Visual Interactive Programming)*	79.
Turbo Pascal Numerical Methods	65.	**Microsoft**	
Turbo Pascal Tutor	45.	Microsoft Basic Interpreter 3.0	62.
Cognition Technology		Microsoft Basic Compiler	125.
MacSMARTS	135.	**THINK Technologies**	
Consulair		Lightspeed C	95.
Macintosh 68000 Development System	59.	Lightspeed Pascal	65.

Utility Software

ALSoft Disk Express 1.10	26.	**Olduvai Software** DA-Switcher II	25.
Font/DA Juggler Plus	32.	Font Sharer	149.
Berkeley System Design		Icon-It! *(Assign Icons to Menu Items)*	39.
Stepping Out II	*Special* 54.	Read-It! TS *(For Thunderscan)*	79.
Beyond Inc. Menu Fonts 2 or Fore Runner	32.	Read-It! O.C.R. *(For Image Scanners)*	199.
CE Software QuicKeys *(Macro Program)*	54.	**Software Power** Power-op Disk Optimizer	33.
DiskTop 3.0 or CalendarMaker 3.0	28.	**Software Supply** Suitcase or Power Station	37.
Central Point Software		**SRT** MacTree	38.
Copy II Mac *(Includes MacTools)*	20.	**SuperMac Software** SuperSpool 5.0	49.
Design Software/Electronic Arts		SuperLaserSpool 2.0	82.
DS Backup	49.	Multi-User SuperLaserSpool	199.
Dove RamSnap	21.	Diskfit 1.4	54.
Electronic Arts Disk Tools Plus	31.	Network Diskfit 1.4	203.
Emerald City Software LaserTalk	187.	Sentinel 1.0	155.
Fifth Generation Systems		**Synex** Mac Envelope	19.
FastBack For The Macintosh	59.	Mac Invoice	32.
Ideaform Disk Quick V2.10	25.	**TOPS** Tops 2.0 or Net Print	119.
Hyper Book Maker	34.	Tops Repeater	189.
Infosphere Liaison	129.	**Williams & Macias** Disk Finder	29.
MacServe *(Network Software)*	158.	myDiskLabeler w/Color	31.
LaserServe *(LaserWriter Print Spooler)*	62.	myDiskLabeler w/LaserWriter Option	34.
Microlytics, Inc. GOfer	*Special* 49.	**Working Software, Inc.** Findswell 2.0	36.

Communications Software

Compuserve Compuserve Starter Kit	24.	**Software Ventures**	
Grolier On Line Encyclopedia	32.	Microphone II *(Includes Glue)*	229.
Compuserve Navigator	45.	**Think Technologies, Inc.**	
DataViz MacLink Plus with Cable	145.	InBox-Starter Kit V2.0	
Freesoft Red Ryder V10	55.	*(3 Personal Connections)*	199.
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Acius 4th Dimension	559.	**Nantucket Software**	
Apple Computer HyperCard	44.	McMax *(dBase III Compatible)*	178.
Ashton Tate dBASE Mac 1.0	295.	**Nashoba Systems** FileMaker Plus	149.
Blythe Software		FileMaker 4	189.
Omnis 3 Plus/*Express*	275.	**Nordic** HyperCONTROL	42.
Borland Reflex Plus	165.	**Odesta** Double Helix II	339.
Chang Laboratories		GeoQuery *Special*	275.
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Routines for 4th Dimension Vol. I	86.	**Telegraphics** Hypertutor	30.

Business Software

Access Mind Write	95.	**Mainstay** Think 'n Time	61.
Trapeze 2.0	159.	Mac Flow 2.0 or Mac Schedule	115.
Bedford Software Simply Accounting	229.	Capture	38.
Bravo Technologies MacCalc	79.	**Micro Planning Software**	
Claris MacProjectII	439.	Micro Planner 6.0	349.
CE Software Quick Mail	179.	**Microsoft** Microsoft Excel 1.06	249.
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Cricket Presents...	289.	Microsoft Multiplan 1.11	119.
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Deneba Software Comment	56.	Microsoft PowerPoint 1.01	249.
Xtra 2.0	109.	**Micro Systems Software** Analyze!	99.
Dow Jones Desktop Express	95.	**North Edge Software** Timeslips III	119.
Legisoft/Nolo Press WillMaker 2.0	29.	**Owl International** Guide 2.0	119.
Lotus Jazz 1A	189.	Guide Envelope System	99.
Lundeen & Associates		**Satori Software** Bulk Mailer 3.2	79.
WorksPlus Commands	60.	Bulk Mailer Plus	195.
MacroPac International		**Shana Enterprises** Fast Forms	79.
101 Macros For Excel	44.	**Turner Hall Publishing** MacSQZ!	49.

Word & Outline Processors

Claris MacWrite 5.0	119.	Microsoft Write	113.
Living Videotext More 1.1C *(Color Ver.)*	175.	**Symmetry** Acta V2.0	36.
Microsoft Microsoft Word 3.02	249.	**T/Maker Company** WriteNow V2.0	98.

Spelling & Grammar Checkers

Aegis Development		Spelling Coach Professional Multi-User	279.
Doug Clapp's Word Tools	42.	**Lundeen & Associates**	
A.L.P. Systems MacProof 3.0		WorksPlus Spell 1.1	46.
(Requires MacPlus)	115.	**Microlytics, Inc.**	
Batteries Included Thunder! 1.23	30.	Word Finder *(Synonym Finder)*	35.
Deneba Software		**Sensible Software**	
Coach Merriam Webster's Thesaurus 2.0	36.	Sensible Grammar *Special*	55.
Spelling Coach 3.0		Sensible Speller	48.
(Webster's/Medical/Legal/Hyphenation)	54.	**Working Software, Inc.**	
Spelling Coach 3.0 Professional		Spellswell 2.0	42.
(Adds Definitions & Thesaurus)	109.	Lookup *(Makes Spelling Suggestions)*	29.

Desktop Publishing

Aldus Corporation PageMaker 3.0	475.	**Postcraft International, Inc.** Laser FX	115.
Allan Bonadio Associates		Laser FX Font Packs #1-8 *(each)*	30.
Expressionist 1.11	46.	**Quark, Inc.** QuarkXPress V2.0	Call
Ashton Tate FullWrite Professional	275.	**Solutions, International** Super Glue	52.
Letraset Ready, Set, Go! 4.0	279.	**Target Software** Scoop	189.
ImageStudio	279.	**Word Perfect Corporation** Word Perfect	185.

Accounting Packages

Aatrix Software Aatrix Timecard	69.	Rags to Riches GL, AR, or AP	120.
Aatrix Payroll V3.0	115.	**Intuit** Quicken	35.
Aatrix TimeMinder	135.	**Layered** Insight One Write	189.
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Inventory Control 2.6 or		**Survivor Software**	
Professional Billing 2.6	239.	MacMoney 3.0 *(Enhanced Version)*	62.

Statistics & Math Packages

Abacus StatView II	369.	**Borland** Eureka! The Solver	129.
BrainPower StatView 512 Plus	175.	**Systat** Systat 3.1 *(Specify Mac 512K,*	
Math View Professional	145.	*MacPlus, or Mac II)*	459.

Graphics Software

3G Graphics Images with Impact!	60.	**Foundation Publishing** Comic People	25.
ABA Software Draw It Again Sam...	89.	Comic Strip Factory	45.
Adobe Systems Adobe Illustrator *88*	349.	**Laserware** Laserpaint Color II	359.
Aldus Freehand	379.	**Macromind** Videoworks II	118.
Altsys Corp. FONTastic Plus 2.0	59.	Videoworks II Accelerator or	
Fontographer 2.2	239.	Driver for Hypercard	125.
Ashton Tate Full Paint	75.	**Meta Software** Design/2.0	199.
Broderbund Print Shop	36.	**Micro: Maps** MacAtlas Paint Version	32.
Casadyware Fluent Fonts 2.0 *(2-Disk Set)*	26.	MacAtlas Professional	129.
Fluent Laser Fonts Vol. 1-19 *(ea)*	45.	**Mindscape** GraphicWorks 1.1	84.
Claris MacPaint 2.0	119.	**Olduvai Software** Post-ART *(3-Disk Set)*	35.
Computer Friends Modern Artist	109.	**Silicon Beach Software** SuperPaint 2.0	109.
Deneba Software Canvas 2.0		Digital Darkroom	169.
(Includes Desk Accessory)	169.	Silicon Press	41.
Canvas DA 2.0	75.	**Solutions International**	
Dream Maker Mac Gallery	35.	The Curator *(Catalog Your Art)*	79.
Dubl-Click Software		**Springboard** Certificate Maker	24.
World Class Fonts! Vol 1&2 or 3&4	36.	**SuperMac Software** Pixel Paint	259.
WetPaint Vol 1&2 or 3&4	36.	**T/Maker** Click Art Letters I, Letters II,	
Enzan-Hoshigumi USA		Personal Graphics, Publications, Effects,	
MacCalligraphy 2.0	109.	Business Image, or Holidays *(each)*	28.
Japanese Clip Art Scroll 1		Christian Images	35.
"Heaven" or Scroll 2 *"Earth"*	52.	Click Art EPS Illustrations	75.
Year of the Dragon	21.	**Zedcor** DeskPaint 1.0	65.

CAD Products

Challenger Software Mac 3D *(Ver. 2.0)*	119.	**Innovative Data Design** Dreams	319.
Claris MacDraw II	179.	MacDraft 1.2B	149.
Cricket Software Cricket Draw	169.	**Silicon Beach Software** Super 3D	159.
Diehl Graphsoft Mini Cad 4.0	375.	Super 3D Enhanced *(Mac II)*	249.

Educational/Creative Software

Baron's Baron's SAT	35.	**1st Byte/Electronic Arts**	
Bible Research The Word (KJV or NIV)	165.	Kid Talk, Speller Bee,	
Bogas Productions Studio Session	49.	First Shapes, or Math Talk	32.
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Davidson & Associates Speed Reader II	39.	Educational Programs *(each)*	29.
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Electronic Arts Mavis Beacon Typing	36.	Dinner at Eight-Silver Palate Bundle	51.
Venture's Business Simulator	47.	**Simon & Schuster** Typing Tutor IV	35.
Business Advantage	49.	**Springboard** Early Games for	
Deluxe Music Construction Set V2.0	61.	Young Children or Easy as ABC	28.

Game Software

Access World Class Leader Board Golf	34.	**Microsoft** Flight Simulator 1.02	32.
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Activision Firepower	16.	MSFL Pro League Football	32.
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or Jinxter	24.	Downhill Racer or Quintette	24.
Might and Magic	37.	Harrier Strike Mission II	
Sky Travel	45.	or The Fool's Errand	27.
Artworx Bridge 5.0	22.	**Mindscape** Balance of Power,	
Avalon Hill Mac Pro Football	28.	Crossword Magic or Citadel	30.
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Fokker TriPlane or Ferrari Grand Prix	32.	Lunar Rescue	30.
Electronic Arts Ogre	20.	MacGolf 2.0 or MacRacquetball V2.0	35.
ChessMaster 2000	28.	MacCourses	34.
Chuck Yeager Flight Simulator *Special*	36.	**Primera** Smash Hit Racquetball II	21.
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Infinity Software, LTD. Go	27.	**Simon & Schuster**	
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or Sherlock *(each)*	24.	**Sir-Tech** Mac Wizardry	35.
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Hitchhiker's Guide to The Galaxy	18.	GATO, Orbiter, or Falcon	26.
Science Fiction Classics	35.	Solitaire Royale	19.
Zork Trilogy	42.	**Studio Zero** Orbital Mech	35.
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Cutting Edge Cutting Edge 800k Drive 175.
Cutting Edge Wedge XL 30 Plus SCSI Hard Drive 629.
Cutting Edge Wedge XL 45 Plus SCSI Hard Drive 829.
Dove Computer Corporation
68020 Accelerator Boards for Mac SE
MSE 1 (16 Mhz) 585.
MSE 2 (16 Mhz w/ 1MB) 779.
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Rodime 100 Plus *(Ext. 100MB SCSI)* 1169.
Rodime 140 Plus *(Ext. 140MB SCSI)* 1319.
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AST Research TurboLaser P/S 3559.
TurboScan *(Sheetfeed model)* 1199.
TurboScan *(Flatbed model)* 1329.
Koala Technologies Corp.
MacVision 2.0 *(Digitizer)* 225.
Kurta
IS ADB Tablet 259.
Cordless 4 Button Cursor 99.
Seikosha
SP1000 *(Imagewriter Compatible)* 229.
Summagraphics MacTablet 12x12 size 379.
Bit Pad Plus *(MacSE & MacII)* 335.
ThunderWare ThunderScan V4.0 with Power Port *(Mac 512K, 512K Enhanced, MacPlus, and Macintosh SE)* 199.
Mac II Power Accessory 42.

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Abaton ProPoint *(ADB TurboMouse for Mac SE & Mac II)* 119.
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Mouse Systems A+ Mouse *(MacPlus)* 67.
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Epic 2400 Int. SE *(Hayes Compatible)* 249.
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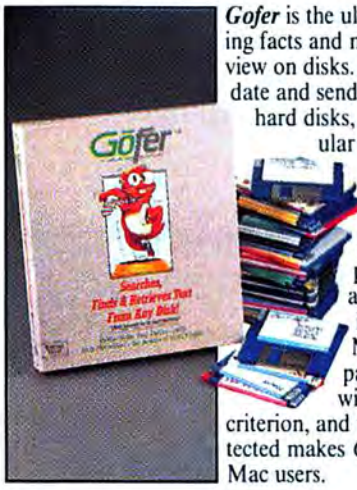
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Chuck Yeager's Advanced Flight Simulator **36.**

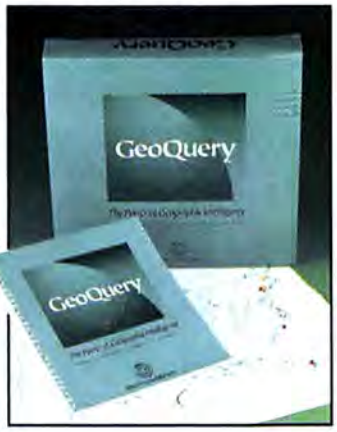
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design your systems to build on the strengths of each, and don't expose your data to the weaknesses of either. If you do have an absolute requirement for some updates to be done locally on a Macintosh, then do everything in your power to protect that data and to see that the mainframe database gets updated as soon as possible.

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by Jim Seymour

Despoilers of The Interface?

To read the business press, and much of the computer press too, you'd think the glorious, immaculate, and never-changing Macintosh Interface is under siege today. On one front, poor embattled Apple is carrying the legal battle to bad ol' Microsoft, the Bullies of Redmond, and to those quiet Hewlett-Packard folks over in Palo Alto. Tsk-tsk: They seemed like such *nice* people, too.

On another front, The Interface is under attack from such infidels as Interleaf and WordPerfect Corp. Both sound as if they are pillaging, sacking, and burning as they move across the menu bar. Will Cupertino stand? Oh say, can you see . . . ? The former are defiling The Interface, the story goes, because they don't know how to write for anything but UNIX machines; the latter, because out there in Utah their hearts are really pledged to the bad ol' world of MS-DOS.

C'mon, folks: Haven't we had enough of this kind of bushwa? There's nothing holy about an interface. We can skip the Crusades this time around; no Inquisition needed, either, thanks very much. Send the thumbscrews to Nicaragua and the rack to Armonk.

Every good computer interface evolves over time, driven by vendors who see ways to stretch and extend the original idea. Sometimes those ideas work; sometimes they don't. But this isn't a holy war; I thought we got theology out of the way in the Mac market a year or two ago. I guess I was naive. And this isn't — the protestations about *WordPerfect* or the Mac notwithstanding — a battle for the Soul of the Macintosh. It's a dumb beast, if an appealing and loyal one, just a platform for software and especially for ideas. Of which, it seems to me, WordPerfect Corp. has an awful lot of good ones. Like a lot of other people, I've been using *WordPerfect* on the Mac through a series of painful betas. Crashes are nothing new to me; I've got my Purple Heart in *WordPerfect* system crashes. *MultiFinder* problems aren't new; I've seen screens not fully rewritten, background colors overwriting other programs' windows, selected text that would hold color or formatting, but not both. That's the game in working with beta software; if you can't stand the heat, etc., etc.



BOB SCOTT

But I really like the release-level version of *WordPerfect*. In large part precisely because, not in spite of, what it does to The Interface. WordPerfect Corp. pushed Apple hard on the need for "daughter menus" — little pop-out menus that jump out to the right of a pull-down menu when you make a selection that requires another level of detail. That's much faster than rewriting the whole screen, and both faster and easier than pulling down a second time. *WordPerfect* on the Mac has what some have called a dizzying array of keystroke alternatives to the mouse. Dizzying? I'd like to have even more — if I need them, I'll learn them; if I don't need them and don't intend to use them, who cares if they're there? *Someone* will want them.

I don't want to dwell on *WordPerfect* here, because I have a column coming up shortly on all the new word processors for the Mac. After dealing mainly with The Toos — *MacWrite*, which was Too Stupid, and Microsoft *Word*, which was Too Clumsy — we suddenly have a phenomenally rich range of alternatives for Mac WP. Ann Arb — oops, Ashton-Tate's — *FullWrite Professional* is the most obvious example, but to ignore gems like *WriteNow* is to miss a lot of that richness. So let me hold onto further thoughts on *WordPerfect* for the Mac 'til that column, Coming Soon to a *MacUser* Near You. Billions Served, etc.

I mentioned Interleaf because of their port of their desktop publishing system to the Mac II. A lot of Mac people are incensed about this product, and in truth, I'm not very fond of it, either. The interface isn't just unMac-like, it's squirrelly, and a pain to work with. This isn't a retraining burden, but a re-*think*ing burden.

Interleaf didn't so much stretch and in the process despoil the Mac interface as they simply didn't *understand* it. Which is neither a sin nor an offense against Apple, but a good example of turning a machine to your own purposes. Fair enough.

Whatever you think of *Interleaf* on the Mac — and if you haven't seen it, don't go out of your way to look at its interface just so you can scowl — let's acknowledge two things about the package, one obvious and the second

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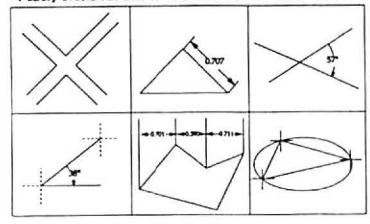
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less so. First, it is a *very* powerful system. The ease of marking global replacements and corrections, the ease of tracking changes, the "big system" overall feel of *Interleaf* on the Mac both bespeak raw power. And anyone who's used Interleaf's *Technical Publishing System (Publisher)* on a Sun or Apollo workstation can tell you that it is powerful, indeed. There's almost nothing you can't do on an *Interleaf* system — if you can figure out how. And lotsa luck. Second, *Interleaf* on the Mac isn't really meant for you and me, and it's not positioned against *PageMaker* or *Ready, Set, Go!* We're holding up the wrong template to judge the product. *Interleaf* on the Mac is really a cheap way for existing Interleaf customers to extend the number of workstations — and even more, the number of work *sites* — without extending, and taxing, their existing network of UNIX workstations.

Listen, I admire Interleaf greatly. Dave Boucher is a visionary and a fine leader for the company, and they invented so much of what is now part of what we call desktop publishing that they deserve worlds of credit. They simply took "our" machine and bent it to their purposes. If we don't like what they did, we don't buy. And c'mon, tell the truth: Were you really on the waiting list down at Software 'n' Stuff for a $2,500 DTP package? I didn't think so.

Back to Apple vs. Microsoft, H-P, and The Rest of the Known World West of Route 128. Apple's suit is silly, embarrassing, shortsighted, self-defeating. If Apple has an attitude problem, they should work it out down at Shrink City, not in the courts. But the kicker here is that to judge from some of the comments in the Mac community about some vendors' extension and redefinition of the Mac interface, maybe we have an attitude problem, too.

An interface is only what you make of it. I'm delighted to see third-party vendors out there stretching and twisting and tweaking the Mac's interface. And making the machine a better tool for us all when they hit paydirt. *And* falling on their faces when they get it wrong.



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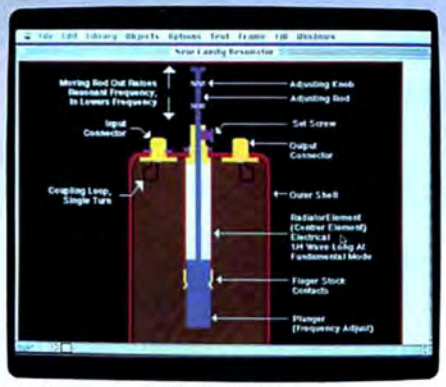
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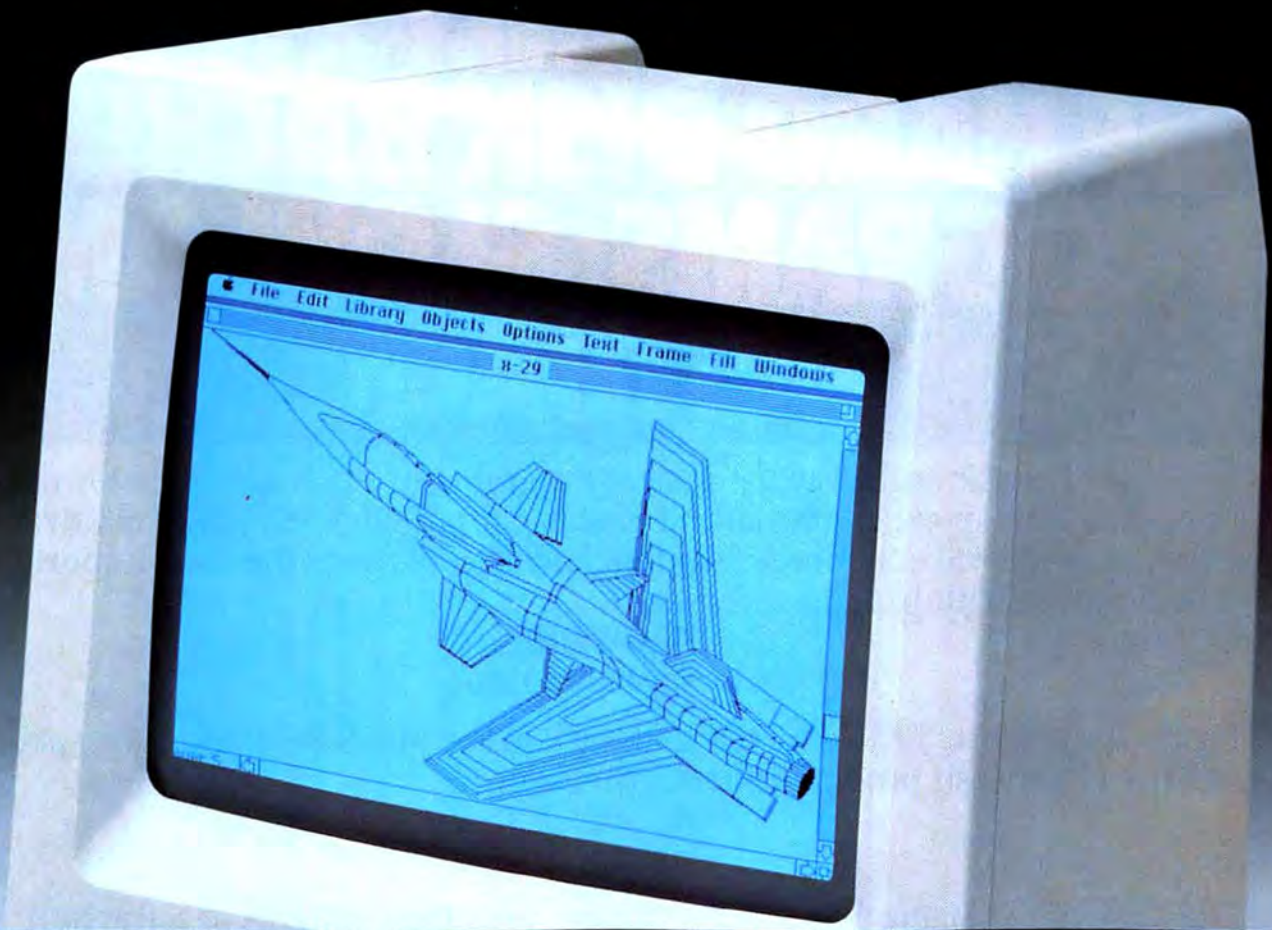
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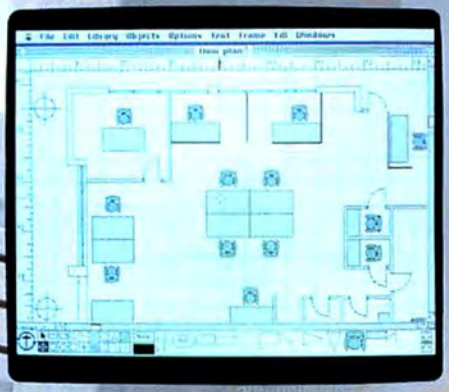




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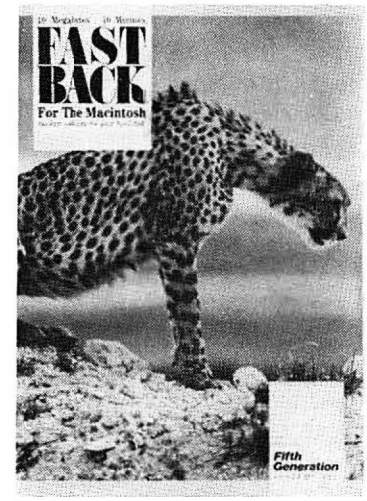
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GRAPHICS

Aldus FreeHand

Until recently, *Adobe Illustrator* was the only Macintosh drawing application offering an interactive interface that took advantage of some of PostScript's more advanced capabilities. Now *Illustrator* has a formidable challenger — *FreeHand*.

Developed by Altsys Corporation, of *Fontographer* fame, and marketed by Aldus, of *PageMaker* notoriety, *FreeHand* takes a qualitative leap beyond *Illustrator* by providing a "freehand" drawing tool, which greatly simplifies the drawing of curves; multiple layers, which help manage complex drawings; improved text handling; and color.

FreeHand's drawing tool allows you to trace (or draw from scratch) a complex curved object without having to worry about where one Bezier curve segment ends and the next begins. The lack of such a tool in *Illustrator* is one of that program's shortcomings.

FreeHand also has specialized tools for connecting two straight lines, two curves, or a curve to a straight line. I find these less appealing because they require you to think a step ahead. Before you draw a line or curve segment, you need to decide whether the segment after the one you are about to draw will be straight or curved and choose the appropriate tool.

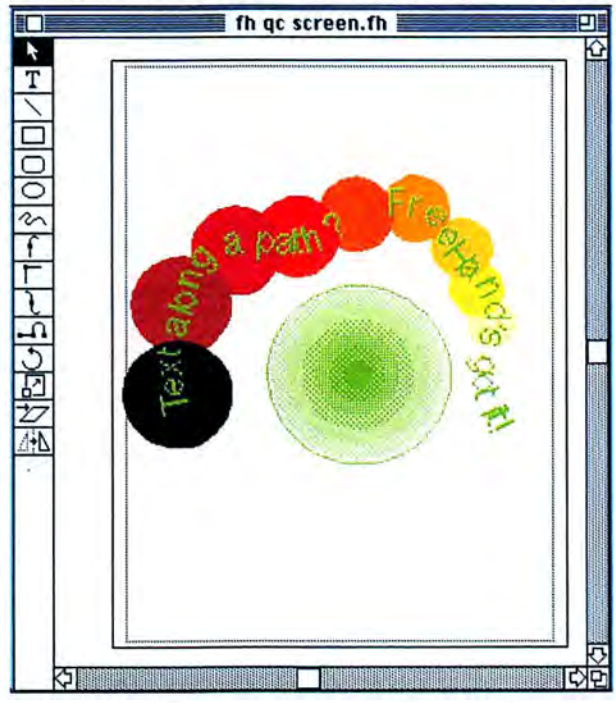
Furthermore, the interaction between the freehand curve tool and the other tools is . . . well, let's just say it doesn't exactly get an "A" for being intuitive.

One of *Illustrator*'s innovations was to separate the abstract outlines of shapes in a drawing (known as "paths" in PostScript) from the characteristics of those paths (such as line width and fill shade) as they appear in the final output of the drawing. Unfortunately, when an *Illustrator* drawing gets complex, it becomes almost impossible to tell which paths are in front of or behind which other paths. *FreeHand* eliminates this problem by providing 200 layers, each of which can have as many or as few objects as you like drawn on it. You can specify which range of layers are active. Because you can only select items on active layers, you can isolate specific objects that require detail work while still allowing objects on other layers to be visible as a reference. Specific layers can be made visible, so you can focus on a set of objects without being distracted by others.

The zero layer is for pasting in *MacPaint* or PICT images for use as templates. Yes, you read that right — pasting in. Unlike *Illustrator*, which allows you to "attach" a template to a drawing without cutting and pasting, in *FreeHand* you must use the Clipboard or an appropriate desk accessory to do the job. Also unlike *Illustrator*, however, *FreeHand* allows you to put multiple objects on the template (zero) layer and to move them around relative to the drawing layers.

In text handling *FreeHand* has also leaped ahead of *Illustrator*. Each individual character in a text block can be a different font, style, and point size. And manual kerning between individual character pairs is supported as well as global letter spacing. *FreeHand*'s text WYSIWYG is also far more accurate than that of *Illustrator*.

But it's the ease with which you can scale text blocks within a *FreeHand* drawing that is perhaps its most welcome advance over *Illustrator*. When you select a text block to resize, *FreeHand* surrounds it with a rectangle with four corner handles. You can scale (resize) the text in the block by dragging one of these handles — just as if you were resizing a rectangle in *MacDraw*. In addition, you can modify letter spacing by holding down the



***FreeHand* rivals *Illustrator* as the tool of choice to manipulate PostScript graphics.**

Quick Clicks

Option key as you drag a text block's handle, and you can modify word spacing by holding down the Shift and Option keys.

There are some rather glaring omissions in *FreeHand*'s text-handling capabilities, however. You cannot stroke (outline) and fill text at the same time. Nor do you have any control over the width of the outline for outlined text. Furthermore, there isn't any simple way to modify *FreeHand*'s PostScript output to overcome this limitation in the user interface.

FreeHand's got color — lots of it. You can define a color using any of four color models: RGB (red/green/blue), HLS (hue/lightness/saturation), CMY (cyan/magenta/yellow), or four-color process (the same as CMY with the addition of black). Once defined, a color can be assigned to any line or fill or to text. *FreeHand* allows you to print either a composite gray-scale simulation of a color drawing or separate images for each different color.

If you use process colors, *FreeHand* automatically prints a separate image for cyan, magenta, yellow, and black layers.

Although there's tremendous power here, the user interface for defining and using colors leaves a bit to be desired. The menus through which you define and access colors are poorly organized and continue to confuse me after many hours of use.

Two more things I simply have to mention. First, *FreeHand* imports *Illustrator* files directly and allows you to edit them — and I do mean edit, not just scale and crop.

Second, *FreeHand* lets you clip one object or group of objects to the outline of another. No, sorry, you can't clip to the outline of text.

Overall, *FreeHand* is a powerful graphics tool, well designed and well implemented. If you're a serious Macintosh artist, particularly if you do color work, you'll certainly want to get *FreeHand*.

But, like all software, it's not without its shortcomings. If you're on a tight budget, wait to compare *FreeHand*'s capabilities to those of *Illustrator '88*, which is due out soon.

Aldus FreeHand ★★★★½
List Price: $495. **Published by:** Aldus Corporation, 411 1st Avenue South, Suite 200, Seattle, WA 98104. (206) 622-5500. **Version:** 1.0. **Requires:** 1 megabyte and two disk drives or hard disk. **Compatibility:** Mac II and *MultiFinder* friendly. **Application Size:** 429K. **Copy Protection:** None.

— *Henry Bortman*

H Y P E R C A R D

Reports

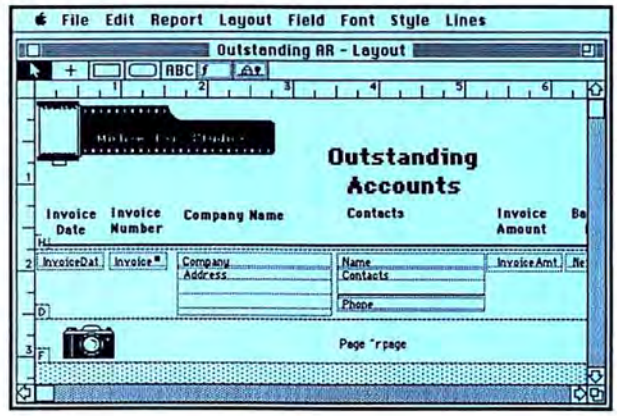


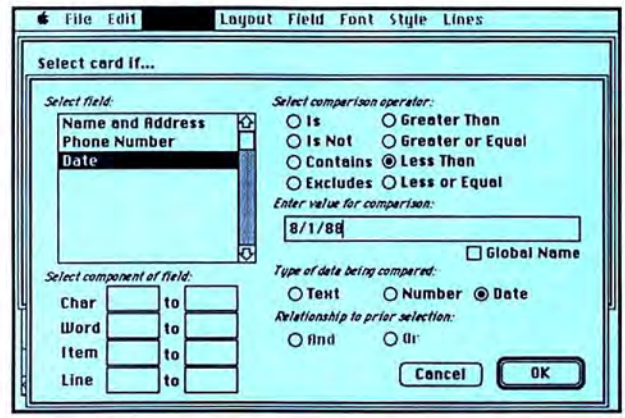
The rudimentary printing capability of Apple's *HyperCard* made a stackware report generator necessary. Activision's *Reports* is the first commercial solution. The question remains: Is *Reports* both necessary and sufficient?

It's hard to say what we have a right to expect from a product such as *Reports* when no one seems to have decided exactly what to make of *HyperCard*. It's not fair to expect *Reports* to be a better report generator than *HyperCard* is a database manager, so that sets one limit. On the other hand, *HyperCard* lets you build Byzantine minarets of information. To expect any program to be able to produce a reasonable report from any possible stack is unreasonable.

A reasonable expectation might be basic database functions — selecting information, sorting, designing the appearance of reports, and being able to customize. That's the road the authors have taken; it's just too bad that they left so many potholes.

Without doing any scripting, you can design very complex reports. You can select cards based on various criteria: the content of individual fields; single lines, items, words, or characters; or contiguous groups of these last four containers. You can base selections on operators such as `greater than` and `contains` or `excludes` and can combine them with `and` and `or` operators. You can join up to 16 such selection tests, picking, for example, all cards that have a value greater than 0 in field Payment, have "CA" or





***Reports* endows *HyperCard* stacks with the power to sort and impart information like a database.**

"Calif" in field State, and don't have "inactive" in field Status; plus all fields with "problem" in field Status, regardless.

The sort criteria are the same as the selection criteria. You can sort on up to five criteria, and the sorting doesn't affect the order of cards in the stack — just the order of information in the generated report.

The report-layout facility of *Reports* lets you align components with one another or with a grid, specify fonts and styles for components, produce multicolumn reports, and paste and resize graphics. An important feature is the ability to position objects in the third dimension, sending a graphic behind an information field, for example.

Activision includes a page-preview utility with *Reports,* and this can be a real time-saver. Unfortunately, it doesn't rewrite the screen properly, so you may suddenly find yourself fumbling in the dark for invisible buttons (if, for example, you use a screen-saver program).

When you need to build custom scripts, *Reports* is a good guide, but be prepared for a different level of interaction. You might be required to enter the same name more than once and to check to see that you haven't used it elsewhere: things you would expect an application to take care of for you. *Reports* is not really an application when you're working at this level: It's training wheels for scripting, and as such it does a good job.

Reports' script editor is much like *HyperCard's* but with selectable templates for handling various stages of the report-generation process — for example, BeforeReport is a template that specifies any action you want *Reports* to take before producing the report.

Reports has its limitations. You can have only one instance of each layout section, so you can't, for example, produce alternate-page headers as in *Microsoft Word.* You cannot elect to print part of a field without doing more programming than the manual prepares you to do. What's more the select and sort features do not support case sensitivity.

These limitations may have been expected because of the task at hand, but there are real problems in the implementation.

The requirement that you insert a special report card into each stack you want to print is at best awkward and at worst unmanageable. If your stack's script performs any actions on all cards in the stack, you may have to modify it. Counts of the number of names in a name&address stack will probably be off by one. The report card in my name&address stack kept hiding the message box, which I use constantly.

Some of the user interaction is just illogical. If I have to install a special card in every stack I want to print, why must I tell that card what stack I want to print? If I design my stack with only one background, why do I have to specify which background I want to work with? And why does Activision insist that the Home Stack, Report Card stack, and the *Reports* program all reside in the same folder?

Activision offers a run-time license for developers who want to incorporate *Reports* capabilities in their products. The license fee depends in part on whether the product is commercial or shareware. Also, Activision offers a free upgrade to Version 1.1, which works with *HyperCard* 1.1.

If you need basic report-generation capability from *HyperCard* right now, *Reports* can probably do the job. But if you can, hold out for a cleaner implementation, either from Activision or a competitor.

Reports ★★★½
List Price: $99.95. **Published by:** Activision, Inc., 2350 Bayshore Parkway, Mountain View, CA 94943. (415) 960-0410. **Version:** 1.0. **Requires:** *HyperCard,* 1+ megabyte, two 800K drives or a hard disk, printer. **Compatibility:** Mac II and *MultiFinder* friendly. **Application Size:** 134K. **Copy Protection:** None.

— Michael Swaine

COMMUNICATIONS

LapLink Mac



Do you need to move files quickly from an IBM-compatible PC to a Mac or vice versa? A TOPS network is overkill if you're using a DOS laptop or just need to bring files over from another department occasionally. Try LapLink Mac, from the maker of a product that's already a best-seller for moving data among PCs.

LapLink Mac comes with one Macintosh disk and IBM disks on both 3.5- and 5¼-inch floppies, a manual, and a special cable that connects almost any



LapLink Mac provides everything you'll need to make speedy transfers of data from the cold MS-DOS world into the more hospitable Mac environment.

PC to any Macintosh. System requirements are modest: an IBM PC compatible that runs DOS 2.0 or later and has 128K of available RAM and any Macintosh using *System* 3.2 or later. Run the program on both computers, and link the PC COM1 port to the Macintosh's modem port. (You can use COM2 or the Macintosh's printer port as well.)

At this point, the Mac becomes a silent partner. A small window appears letting you know that the program is active. But all the action is on the PC side. The PC screen displays a two-column listing with PC files on the left and Mac files on the right. (You choose the sort order — alphabetic by name or extension, size, date, or disk order.)

A list of commands appears across the bottom of the screen and operates like a standard PC menu. On the PC, press the first letter of the command you want to execute.

To copy a file from one computer to another in either direction, use the LOG command to display the source and target directories. Select the file, then use the COPY command and watch the document fly, error-free, at 57,600 bps (bits per second). (In a very few cases the PC may not be able to operate at 57,600 bps, so you must select a slower rate.)

You can configure the COPY command to modify certain characteristics of a file when it's duplicated. Because PC files don't have creators, LapLink Mac adds a creator of your choice so you can view the Mac file by double-clicking on it. You can also control how carriage returns and line feeds are handled and whether control codes are transferred. At your option a file with the same name can overwrite an older version, and you can set a range of dates so all files inside the range are copied.

If you have many files to transfer and don't want to handle each individually, use the GROUP command to tag files. Select the files you want to copy, then issue just one COPY command. All files must be within the same directory.

You can also use the WILDCOPY command to select all files in the current directory whose name matches a pattern — for example, copying from mac*.* would copy all files that began with "mac". You can also use commands to erase or rename files, display a treelike list of files, or look at the contents of a file.

My biggest regret about LapLink Mac is that it ignores the Mac interface entirely by controlling everything from the IBM PC. For anyone who's familiar with PCs, and especially those who have used LapLink for IBM machines (with an almost identical interface), this isn't a serious objection. The PC interface is still easy to use and learn. Operation from the Mac side, however, would provide more flexibility and make Mac users feel more at home.

LapLink Mac does no conversion of file formats, so your PC *WordStar* file won't magically turn into a file that can be read by *MacWrite* as it is transferred. Instead, you're asked to rely on file-conversion utilities provided by program manufacturers. That's a reasonable request because supporting all the available file formats would probably delay the product by decades and increase the size of the program tenfold.

The current release is fully compatible with *MultiFinder* and allows background file transfers flawlessly. It's also compatible with Mac and PC networks: TOPS, AppleTalk, 3+ from 3Com, and other major networks can operate simultaneously.

LapLink Mac puts in one package everything you need to make a speedy and easy transfer of information with the DOS world. Traveling Software needs to put control of the transfer in the lap of the Mac, but even so LapLink Mac is a good connectivity solution.

LapLink Mac ★★★★
List Price: $139.95. **Published by:** Traveling Software, 19310 North Creek Parkway, Bothell, WA 98011. (206) 483-8088. **Version:** 1.2. **Requires:** 512K. **Compatibility:** Mac II and *MultiFinder* friendly. **Application Size:** 77K, IBM PC; 70K, Macintosh. **Copy Protection:** None.

— *Linda Custer*

NUMBER CRUNCHING

Microtemp Financial Calculators



Sophisticated products such as *Excel* and *Works* are useful tools that build powerful spreadsheets. What they lack are prefabricated materials to make constructing those spreadsheets easier. Enter Microtemp, a company that has carved out a single specific niche for itself — financial-calculator templates that use *Excel* or *Works* as a "calculation engine."

Upon opening the disk, you'll find a well-organized set of folders containing 45 templates arranged by category. The categories are personal cash flow, real estate investment, break-even point, business cash flow, and financial planning. Specific templates include formulas that compute monthly payments, interest rates, amortization, and other commonly used financial calculations. It's clear that a great deal of work went into designing and organizing these calculators.

The manual briefly describes the templates, but the lion's share of the documentation is on the disk. This is great for people who prefer on-line help, but it's tough for anyone who likes hard copy. A glossary file, included on the disk, offers an easy point-and-click method for reading the definition of any unfamiliar terms you're likely to encounter.

The calculators sometimes make clever use of *Excel*'s basic functions and demonstrate that you don't always need to write macros to take advantage of *Excel*. This point is key because *Works* doesn't have a built-in macro function.

The templates can also be used as style and design examples for people who want to "roll their own." I had some difficulty in doing so for a few reasons. The first is that it's always tricky navigating around someone else's worksheet until you know where

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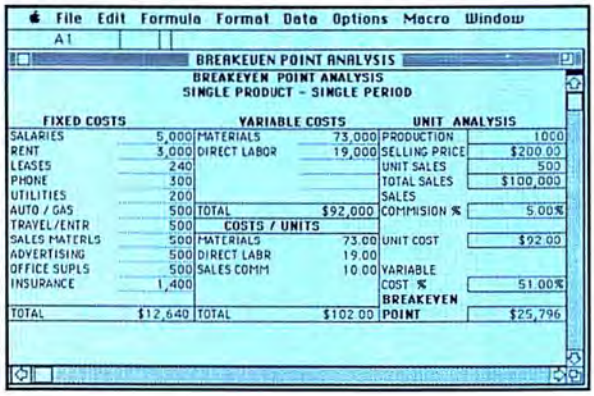
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Quick Clicks



This financial calculator from Microtemp for use with *Excel* analyzes costs and sales to come up with a breakeven point in marketing a product.

things lie. The documentation suggests this approach at one point. The second obstacle to modification is that Microtemp makes it difficult to blithely copy its work. The very first worksheet I opened contained several cells set to Hidden, so I couldn't see the formulas until I had unprotected the document.

There is one glaring attribute of the documentation worth mentioning. Microtemp has littered numerous references to its consulting services throughout the manual and in some of the on-line material. This peppering of mini-ads is annoying. I'd have better appreciated a well-designed and more extensive brochure in the package. The company's approach gives the package the feel of one giant advertisement.

Criticisms aside, I recommend *Microtemp Financial Calculators* to anyone who makes extensive use of the kind of calculations in these templates. I would also recommend the calculators as a stylistic example of several well-organized spreadsheets, although they would benefit from less frequent use of the Chicago font.

Finally, *Microtemp Financial Calculators* are a source of good documentation for a large number of key financial ratios. Some *Excel* and *Works* users will be well served by this product.

Microtemp Financial Calculators ★★★½
List Price: $79.95. **Published by:** Microtemp, P.O. Box 1208, Santa Rosa, CA 95402. (707) 575-1459. **Version:** 1.0. **Requires:** Microsoft's *Excel* or *Works*. **Compatibility:** Mac II and *MultiFinder* friendly. **Copy Protection:** None on disk; files are soft-protected to prevent modification.

— Louis E. Benjamin, Jr.

U T I L I T I E S

MacSQZ!



Perhaps you've encountered this situation: An important *Excel* file you've been using for several weeks has been growing steadily, but you haven't paid attention. You make the last revisions and start to save the file. Suddenly, a message pops up and says the disk is full! In a cold sweat, you ferret around for a blank disk, perhaps even throwing yourself upon the mercy of fellow office mates in your quest for magnetic Manna from Heaven.

Most of the other options don't seem too rosy. You could use *Excel*'s DELETE function to clear away some other expendable files from the disk. Or you could carefully archive and back-up old files so that only a few key documents remain on the disk when you start work. Wouldn't it be simpler if *Excel* files were just smaller?

With *MacSQZ*, your files can be as much as 85% smaller. The best part is that once you set up *MacSQZ*, it works like a silent partner and installs itself only when you need it. If *MacSQZ* provided only file reduction, it would be a valuable asset. But it also provides passwords for file security and a way to attach notes to a file each time you save it with *MacSQZ*.

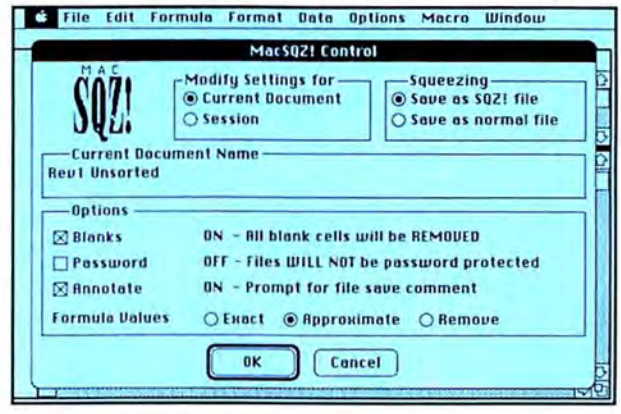
MacSQZ is actually a family of related software. You install the *MacSQZ* DA and drag an Init file into the *System* folder. If you have room on the disk, copy *MacSQZ* Tools onto it too. *MacSQZ* Tools lets you alter the default settings of your *MacSQZ* installation.

Finally, the *MacSQZ* kit contains Apple File Exchange, which allows you to "batch squeeze" and "batch unsqueeze" files and to convert files such as the ones created with Lotus *Symphony* to squeezed files compatible with *Excel*.

To complete the installation process, reboot your Mac. Selecting the *MacSQZ* DA on the desktop produces a message informing you that it's needed only when you're running *Excel*.

The *MacSQZ* DA is used to change the squeezing options of a particular file or all subsequent files that you save while in *Excel*. If the first thing you do every session is change the squeeze settings, use the Tools to change the default settings to save a step in the future. You also use the Tools to review the "audit trail" of attached notes for your squeezed files.

The save settings include several options to control how tightly compressed the files should be. By saving your files with empty cells blanked and excluding the calculated value of all



***MacSQZ!* compacts extra-large *Excel* files to free up disk space.**

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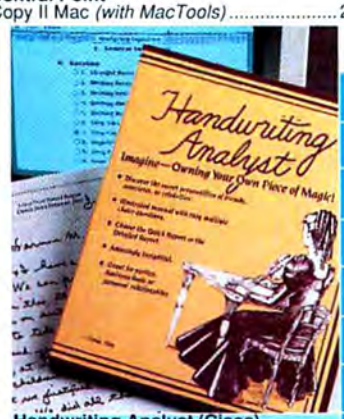
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excluding the calculated value of all formula cells, you can achieve 85% reduction with many of your files. I had no difficulty reducing the 30K sample file to 11K (63%) using more lenient settings. Once you save a squeezed file, the document is no longer really in the *Excel* format. You can tell this first because the icon of a squeezed worksheet is shorter than that of a regular *Excel* document. *MacSQZ* also appends a ! character to the end of the name of each file you compress so that you can distinguish the files from regular *Excel* files.

If you double-click a squeezed document, the Tools application cleverly hands off the file to *Excel* so that the result seems nearly the same as double-clicking a regular *Excel* file. You need Tools on the disk to do this, though. Without Tools, you'll get the message "An application can't be found to open this document."

As files unsqueeze, you'll see an animated cursor in the shape of an expanding document. Although it's true that squeezed files open more slowly than noncompressed documents, the time penalty is not severe. In fact, performance is surprisingly fast.

MacSQZ's shortcomings are that it comes in several parts, and those parts aren't seamlessly integrated. You can't inspect the audit trail of a squeezed file while you're still in an *Excel* session. *MultiFinder* solves the problem, but depending on your *System* configuration, *MacSQZ* may not work with *MultiFinder*. Turner Hall promises a fix for full *MultiFinder* compatibility in the next version.

In short, *MacSQZ* is a set of tools that do an exceptionally good job of reducing the amount of space taken up on your disk by *Excel* files. At the same time, *MacSQZ* doesn't require a lot from you and gets out of the way when it's not needed. I only wish all software could make that claim.

MacSQZ! ★★★★★
List Price: $79.95. **Published by:** Turner Hall Publishing, 10201 Torre Avenue, Cupertino, CA 95014. (408) 253-9600. **Version:** 1.01. **Compatibility:** Mac II friendly; *MultiFinder* hostile. **Copy Protection:** None.

— Louis E. Benjamin, Jr.

ORGANIZATIONAL TOOLS

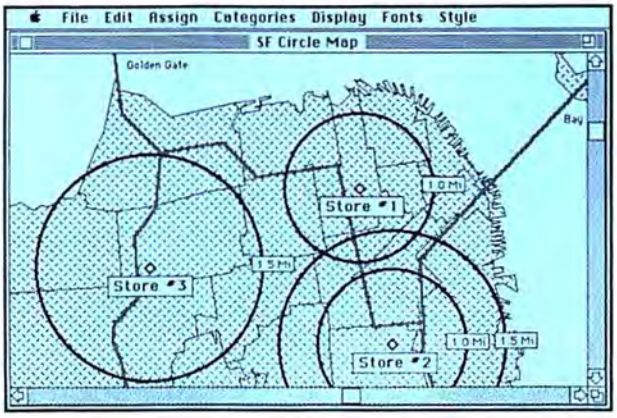
MapMaker

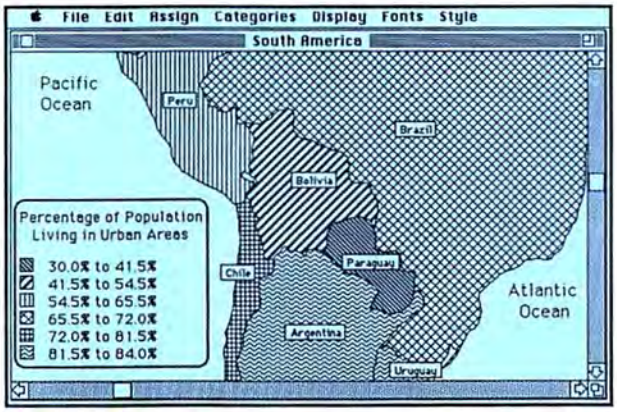
MapMaker 3.0 is a combination digital cartographer, geographic analyst, and graph generator, all in one package. It gives you the power to see information, such as the demographic makeup of a sales territory, actually on a map. Best of all, it does it better than any other program of its type.

MapMaker's extensive collection of maps lets you start laying out and analyzing your information right away. The program comes with boundary files for the U.S. by state, each state by county, 90 U.S. metropolitan area centers, the world by country (176, grouped in 9 geographical areas), and 169 world capitals. Included for use with these boundaries are data files containing statistics in 22 Population, 22 Income, 14 Retail Sales, and 5 Market categories by state as well as 13 population categories by county and 20 world population categories by country.

If your needs are more specialized, files for individual states by county (more detailed) and the U.S. by Zip Codes, Telephone Area Codes, Congressional Districts, Metropolitan Statistical Areas, Areas of Dominant Influence, or Designated Marketing Areas as well as custom boundaries are available from Strategic Locations Planning (4030 Moorepark Avenue, Suite 123, San Jose, CA 95117). Only the largest market research firms will find a need for these complex maps, which are priced accordingly (i.e., expensive).

MapMaker reads and analyzes the selected boundary files (complete, in parts, or in combinations) and draws the map in scale to whatever size you specify. Making maps is easy, but some planning helps. Because each is individually calculated, you cannot add or subtract boundary elements after a map is composed. If, however,

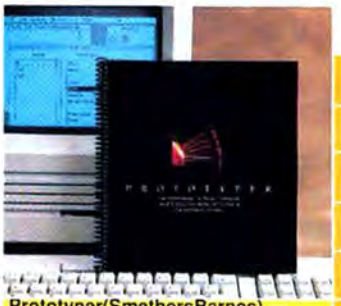




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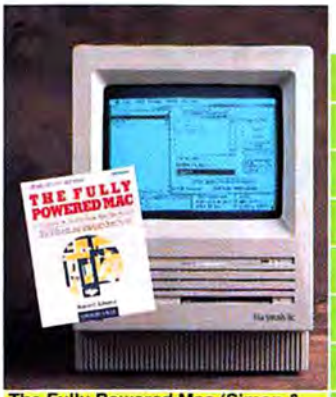
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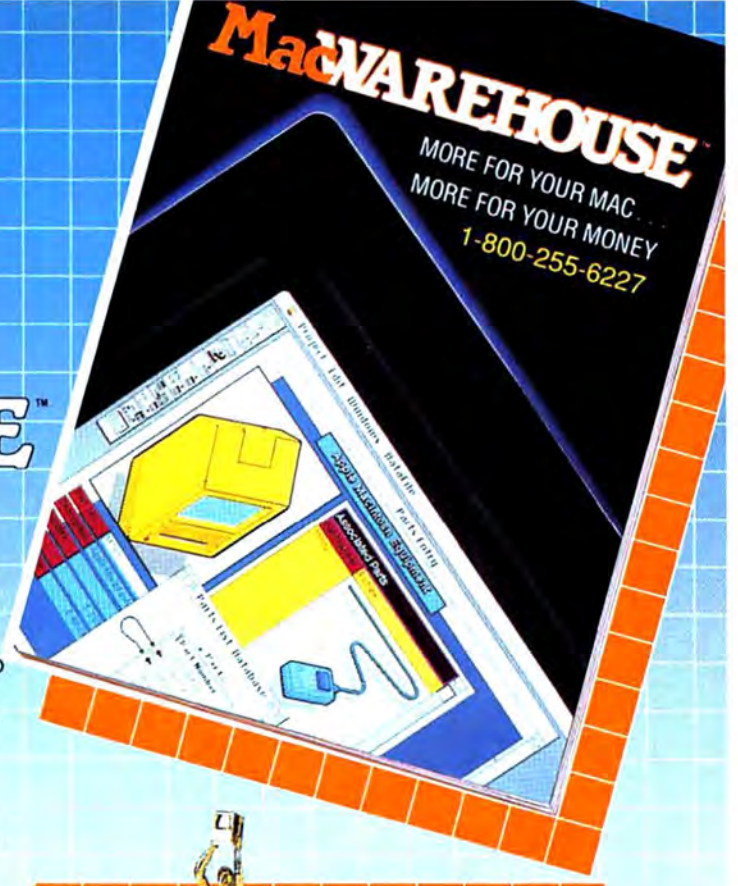
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you realize something needs to be changed, maps are generated so quickly that starting over is painless.

MapMaker 3.0 is also an analysis tool that lets you correlate information to the geography described by your map. In addition to the statistical data included with the program, information may be entered from the keyboard or imported from other applications such as a text file. You can assign up to 30 data values to any area or point, and you can display each data category with as many as 35 divisions. *MapMaker* graphs the relative values of the data according to the geographical areas. Also, the program produces statistics for the total data category and for each of the data divisions.

You can alter the patterns and symbols displayed on a map at any time, and you can attach map legends and text labels in a variety of styles and fonts to any location on the chart. And every map element can be assigned a color. On Mac IIs, you can display them on-screen, letting you fine-tune the mixture.

As well as its proprietary format, *MapMaker* 3.0 also saves maps as *MacPaint* or *MacDraw* (PICT) files, letting you transfer the map to another application for incorporation into a page layout or presentation document, or for further editing. New in this version, maps saved in PICT retain their object graphics traits. Each element can be manipulated individually within a Draw application.

This latest release of *MapMaker* incorporates several other enhancements. The program is now *MultiFinder* compatible. In addition, shift and command-click selection of multiple boundaries is possible. A new Find feature lets you search for a boundary by typing in its name. And you can attach text labels to a screen or a map location.

In addition to standard maps and charts, *MapMaker* 3.0 can draw Area Cartograms (areas sized according to a data value) and Dot Density plots. Pattern Fill and Dot Density maps can be combined to produce "bivariate" (two data variables displayed) maps. Selected areas on a map can be "exploded" from their neighbors in any direction for graphic emphasis. Map points can be plotted in shapes graduated by data values. And, with this release, maps may be drawn in Mercator, Albers, and Miller as well as actual longitude and latitude projections. Boundary files may be converted from one type of projection to another from within the program. Though *MapMaker* 3.0 is easy to use right out of the box, mastering all its facets can take some time — for example, you can draw circles (depicting zones around a point) and curves (roads and so on) on maps according to their radii, but currently, this is only possible by editing the boundary files. You can customize or create your own boundaries (file specs are detailed in the manual) with the included text editor.

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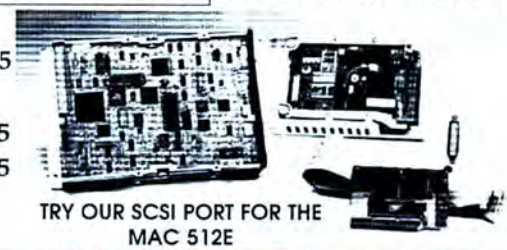
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Quick Clicks

The documentation could still be better. The Version 2.0 manual was more clearly written. But in its defense, all the information you need is there. When I reviewed Version 1.0 of *MapMaker* (January '87), I said it was a "gem still needing a bit of polishing." I am happy to report that with Version 3.0, this product has been polished to a very nice luster.

MapMaker ★★★★½
List price: $349. **Published by:** Select Micro Systems, 40 Triangle Center, Suite 211, Yorktown Heights, NY 10598. (914) 245-4670. **Version:** 3.0. **Requires:** 512K. **Compatibility:** Mac II and *MultiFinder* friendly. **Application Size:** 241K. **Copy Protection:** None.

— *Carlos Domingo Martinez*



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G R A P H I C S

Black & White Movies Clip Animations Clip Charts Clip Sounds

VideoWorks II is a great program — a complete animation environment within your Mac. And it's not just a hacker's tool. Its OverView feature lets almost everyone use it to organize static or animated images for graphic presentations. Of course, for anyone with a normal workload, the problem is creating those images, especially the animated ones. Because *VideoWorks II* treats images and animation sequences as discrete elements, clip art provides a solution.

Black & White Movies, Clip Animations, Clip Charts, and *Clip Sounds* are disks of animated clip art. Each sold separately, they encompass complete movies, short animated sequences, chart templates, and digitized "sound bites." You simply import them with *VideoWorks II* to spice up your animated presentations.

Black & White Movies consists of 17 "complete" movie sequences. Static graphics, animation, and sound are already integrated into short featurettes. They range from a *Film Noir* detective story executed in comic-book panel style to a wonderfully fluid flying helicopter, from an animated Tangram puzzle to a complex movie of a fanciful TV factory. Each is entertaining and illustrates individual animation techniques or their combination.

Clip Animations is a collection of 50 standard-looking, clip-art images but with animated elements — for example, the smoke from the ocean liner rises and hands come together in a handshake.

Also included is a selection of animated text graphics (words such as *marketing* and *sales*).

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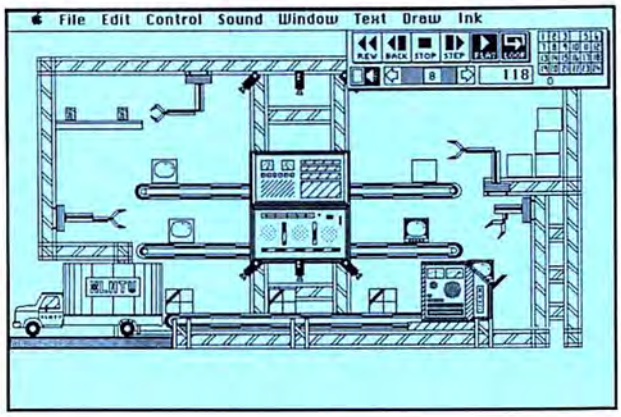
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Quick Clicks



This *VideoWorks II* film of a TV factory is one of many pieces of clip animation available from MacroMind.

Clip Charts contains all the elements needed to create custom animated bar, pie, line, or bullet charts. Grids, scales, and graphic elements (too many to list) can be combined. Because every element is a *VideoWorks* "cast member," each can be animated, for example, to appear in sequence.

Clip Sounds comes with 16 sound sequences, ranging from music segments to sound effects, to incorporate into your animations. Digitized sound takes up incredible amounts of disk space, so these sound sequences are short — something to consider when you decide to add music to your presentations.

Also included in the *Clip Sounds* disk is the *Sound to Video* application, which moves digitized sound files to *VideoWorks II*. *HyperCard Sound to Video* accepts files from the MacRecorder Sound System, *SoundCap*, or *SoundWave* digitizers. If you're creating your own sounds, it serves as a bridge to your animations.

Most of these clip animations are in black and white, so you can use them with standard Macs without much loss of impact. Mac II users with color systems can colorize the images with *VideoWorks II*. The *Clip Charts* disk, however, does have a folder of color images.

Naturally, whether or not you like the animated clip art and clip sounds on these disks (or think them useful) is a matter of taste. I confess to finding the "frivolous" images more appealing than those intended for serious presentations. All are well conceived, however, and the graphs look great in color. I can't wait to see the Color Movies disks.

Black & White Movies
Clip Animations
Clip Charts
Clip Sounds ♯♯♯♯
List Price: $59.95, *Clip Sounds, Clip Charts,* and *Clip Animations;* $49.95, *Black & White Movies.* **Published by:** MacroMind, Inc., 1028 W. Wolfram, Chicago, IL 60657. (312) 871-0987. **Requires:** *VideoWorks II.* **Copy Protection:** None.

— Carlos Domingo Martinez

ENTERTAINMENT

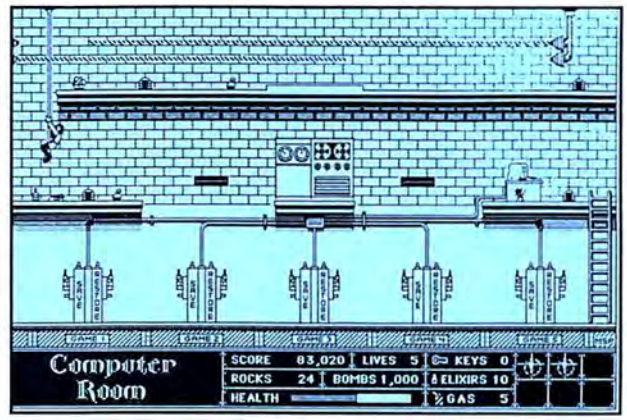
Beyond Dark Castle



Medieval theologians used to debate just how many angels could dance on the head of a pin. A more interesting question for Mac users is just how many lives does Prince Duncan have? After battling his way through the original *Dark Castle*, being killed and resurrected on thousands of Mac screens thousands of times along the way, he now has the chance to do it all over again in *Beyond Dark Castle*. Those people who disliked the first *Castle* will find little to love in *Beyond*. But, by the same token, the many fans of the original game will quickly be charmed.

As in the original, keyboard commands direct an animated Prince Duncan to run, climb, jump, and fight his way through the castle's 13 different and interconnected rooms — some more than once — hurling rocks with desperate abandon to kill mutants, robots, and an unending supply of plague-ridden beasts and rats. He must also collect elixirs that cure poisonous bites, find the magic shield, discover the secret of fireballs, and avoid tumbling down into the dungeon. (By the way, don't despair if and when you do tumble into the dungeon; it's a perfect place to pick up extra rocks, elixirs, and lives.) In addition to all this, there's also a strategic task: Find the magic orbs and carry them back to the antechamber. Only then can he do final battle with the Black Knight. Just to make things a wee bit more difficult, poor Prince Duncan must also gather keys to open locked doors and find food to restore stamina and health. Of course, there's a host of new deadly enemies that include giant mosquitoes and fast-moving snakes.

The scenarios are different enough to enthrall old players and clever enough to prove popular with those who never played the first game. As before, Duncan's main weapons are his wits, speed, and supply of rocks.



Prince Duncan is back in *Beyond Dark Castle*, the sequel to the widely acclaimed kill or be killed game.

Once again, he must learn to swing from rope to rope and battle the flaming eye. Now, however, he must also find his way through the labyrinths, gather (and set off) bombs, traverse the catacombs, and learn to fly (and fuel) the backpack helicopters used to sail over the neighboring swamp and forest.

Those playing *Beyond* have two advantages not available before. In a special practice mode, players can learn the secrets of each room while using cheat keys to add to their supplies and health. At the same time, they can now save games in progress each time our hero returns to the antechamber, freeing Duncan from having to start afresh each time.

As with the original *Dark Castle*, those doing battle do so at three levels, starting with beginner and going up to advanced. Once again, the difficulty increases with the level, with more vermin, mutants, and robots patrolling the corridors. As ever, the Dark Knight drinks a lot of beer and dislikes fireballs. If, after killing him, you get stuck, think back to the opening sequence of the game. At lower levels, once Duncan beats the Black Knight, he is promoted a grade. A victor in advanced mode unlocks a secret animation.

At one level, *Beyond* is an excellent game, far better in many respects than the original. At the same time, however, it remains something of a disappointment. When it was released, *Dark Castle* was so much better than similar games that I hoped the sequel would be as revolutionary as the original. It's not.

In the simplest terms, *Beyond Dark Castle* is more of the same. Yes, there are new foes, new tasks, and new strategic aims. Yes, the game provides hours, even days, of fun. Beyond that, *Beyond* is neither especially new nor especially exciting.

Beyond Dark Castle ★★★½
List Price: $49.95. **Published by:** Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. (619) 695-6956. **Requires:** 512KE. **Compatibility:** Mac II friendly; runs under *MultiFinder* but unable to switch applications. **Copy Protection:** None.

— *Jay Palmer*

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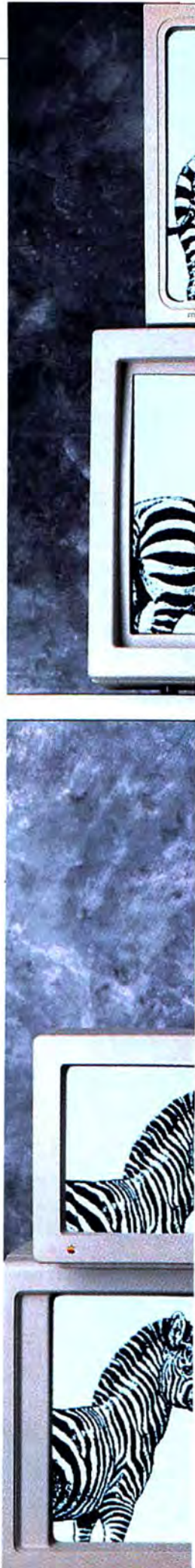
Black & White & Read All Over

MacUser Labs monitors the options for big black-and-white screens.

Desktop publishing is to blame, you know. Before it came along and upset the apple cart, the Mac's built-in 9-inch diagonal screen seemed compact and cozy, not small. Sure, a bigger screen would be nice, but the 9-incher was so sharp and so easy on the eyes that a bigger screen wasn't missed.

But after DTP became a driving force behind the Mac, 9 inches suddenly felt cramped, constrained, and downright constricted. The proud claim of WYSIWYG (What You See Is What You Get) was only true for half-pages and partial drawings. Computer-aided designers, drafters, and engineers also needed a little more

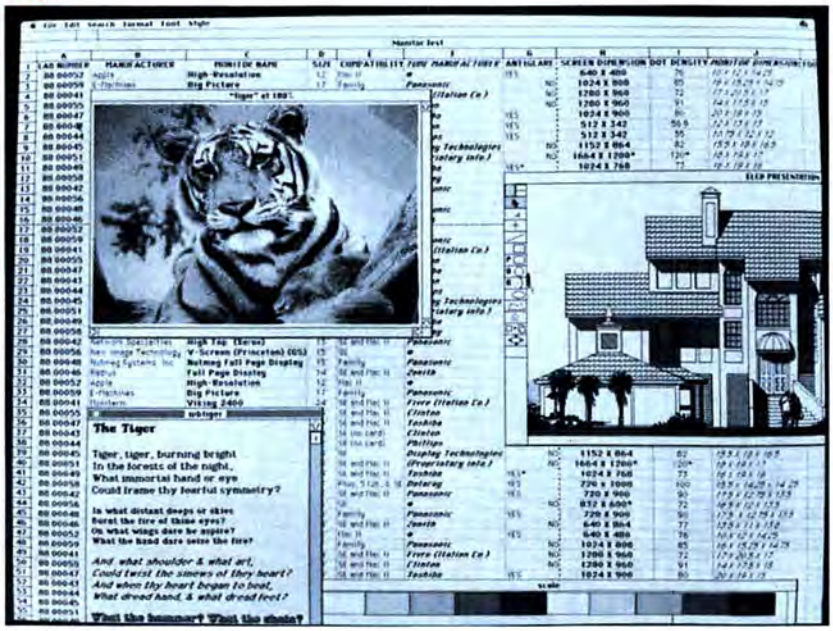
BY PHILLIP ROBINSON & THE MACUSER LABS STAFF

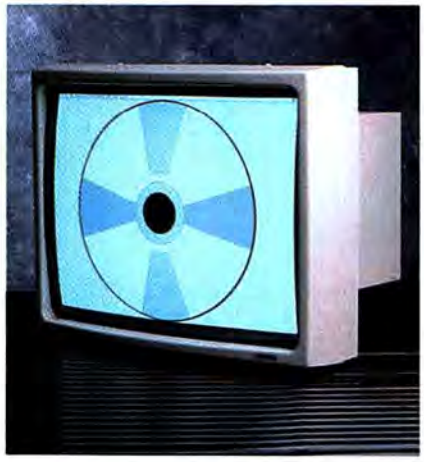


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Moniterm's Viking 2400
A 24-inch monitor with a resolution of 1280 X 960

Large displays for the Mac II followed, ranging in size from 12 to 24 inches. Most of these were black and white, following in the monochrome footsteps of the original Mac monitor. Some offered as many as 256 intermediate shades of so-called gray-scale, and others took advantage of the Mac II's potent color circuitry. For this MacUser Labs report, we looked at large monochrome monitors and one limited (4-level) gray-scale monitor. Future reports will cover color and full-range (256 shades) gray-scale monitors.

We dug into all the technical details of monitors at the labs, connecting them singly and in half-dozens to our Mac IIs, researching obscure details about the phosphor coatings on their tubes, and investigating the physics and effects of special anti-glare coatings for the monitor faces.

In the end, though, we found that while technical data helps eliminate some options, your final choice will also depend on personal preferences. What do you think about a monitor's particular phosphorescent glow? Do you like the way it treats your particular applications? To paraphrase, even if you don't know anything about monitors, you probably know what you like. But before you visit a showroom or colleague's desk to eyeball a monitor, it helps to know what some of the technical comparisons are and how typical monitors stack up.

TOO MUCH OF A GOOD THING

For first-time users, the first aspect of the big screens that strikes you is usually just how big they are. Be careful about this aspect of monitors — you may have a hard time going back to the 9-inch life. Like a TV's, a monitor's size is typically given as the diagonal measurement of its cathode ray tube (CRT), which can range from simple 12-inch models to enormous 24-inch models. But the usable display area is a little less than the nominal size usually claimed by the manufacturer, since some of the tube's surface is hidden by the monitor frame. And the active area that actually shows the computer's output is generally even smaller.

elbow room. Room for bigger documents, room for tool palettes, room to exploit *MultiFinder*.

Mac users would sometimes gaze with envy at PC users who could swap a big monitor for an even bigger one just by plugging a new video adapter into a slot and hooking it up. It wasn't easy there either, with each video adapter requiring all sorts of drivers, DIP-switch settings, and software compatibility listings. But the options were open.

Oh, there were some awkward workarounds for the Mac Plus such as opening the case and drilling holes (and violating your warranty in the process) or using special clamps to attach peripherals to the motherboard, but these were truly "peripheral" products — tricky to set up and to use.

The SE offered a bit more breathing space, with the Mac family's first expansion slot. The Mac II brought a sea change, with six slots on a bus system that could automatically adapt to new plug-in boards. And the sales success of the Mac in the business world during 1986 and 1987 was a catalyst — convincing developers that the Mac market was both big and hungry.

A few companies began offering larger monitors that could be plugged into the SE, though these did not necessarily use the built-in expansion slot.



CAVEAT EMPTOR: WE'VE HEARD ABOUT SPECIAL SO-CALLED "CRT" EYEGLASSES. THESE HAVE NOTHING TO DO WITH GLARE REDUCTION. THEY ARE BASICALLY READING GLASSES WITH THE FOCUS SET FOR THE DISTANCE YOU NORMALLY SIT FROM THE SCREEN.

Monitors also have orientations. Not Democratic or Republican, but portrait or landscape orientation (or format). A landscape orientation monitor has a screen shape that is wider than it is tall. This is the typical orientation for computer monitors (and home TVs). A portrait monitor is taller than it is wide, which is handy if you want to display an image of a full page of paper. Some landscape monitors are large enough to show two actual-size pages side-by-side on the screen at once.

ONE SIZE FITS ALL? NAAAH....

Not all monitors work with all Macs; some require a Mac II, while others can be connected to an SE or even to any member of the Mac family. Make sure the monitor you choose is compatible not only with your current system, but with any foreseeable system upgrade. You might also want to check on installation fees and any services available from your local authorized dealer, particularly if you're nervous under the hood of a computer and will need to graft a monitor onto the display circuitry of an SE or Plus.

Connecting to IIs is pretty easy. Plug your video card (be sure it can be used with your monitor) into a NuBus slot, hook up the monitor, copy the monitor software (if any) to your System Folder, and RESTART. (Sometimes you'll need to use the Control Panel to adjust the monitor's resolution or display characteristics, as discussed in more detail below.)

THE BOTTOM LINE AND BEYOND

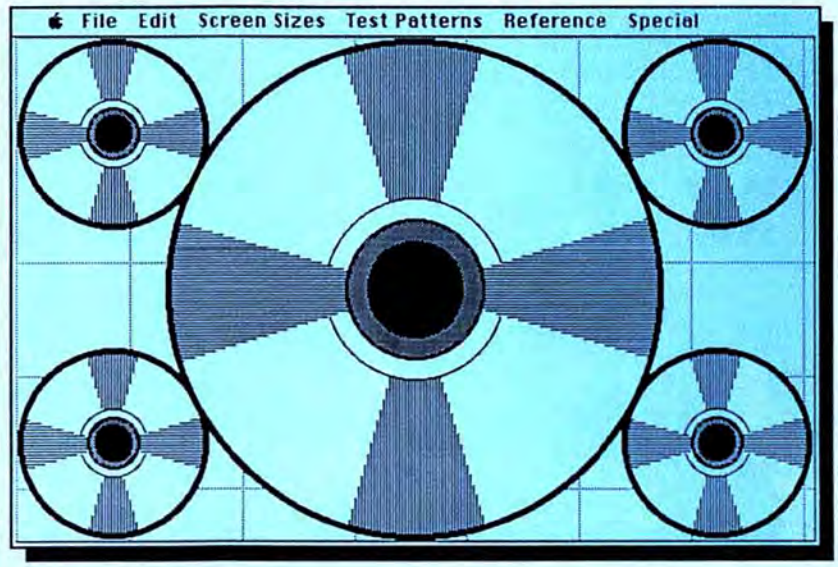
If you're like me, the next "feature" you notice about a monitor, after you decide on a size, is price. After throwing a few images on the screen and marveling at their extent and clarity, you'll probably search for the tag. These monitors range from relatively cheap (around $400) to definitely expensive (around $2500). In general, price goes up with size, although there are other factors that affect how hard your wallet will get hit. The real price for many of the biggest and most expensive units includes the video adapter card you need to connect them to a Mac II.

Here's Looking At You, Monitor

We commissioned Larry Pina to modify his already excellent and comprehensive shareware program, *Test Pattern Generator*. This program helped us check monitors for various forms of distortion. We looked at linearity by examining circles for roundness and lines for straightness. The program's focus test generates a screen full of small alphanumeric characters. We found that most monitors have some focusing problem at the edges. For this reason many manufacturers move the raster in, slightly reducing the active area on the screen.

Another test in this program lets you test screen sizes — you enter your screen's size resolution pixels; the program returns a height and width measurement in inches that you can check against a ruler. (We thought we had found a couple of discrepancies, but it turned out to be just a case of outdated manuals.)

You can get a copy of *Test Pattern Generator* on CompuServe in the MacPro section in Data Library 4 under the name TPATGE.SIT. (The shareware fee is $10.) We recommend you get a copy to check out your current monitor, or to take along to the store for comparing monitors.



WHAT'S ON THE SCREEN

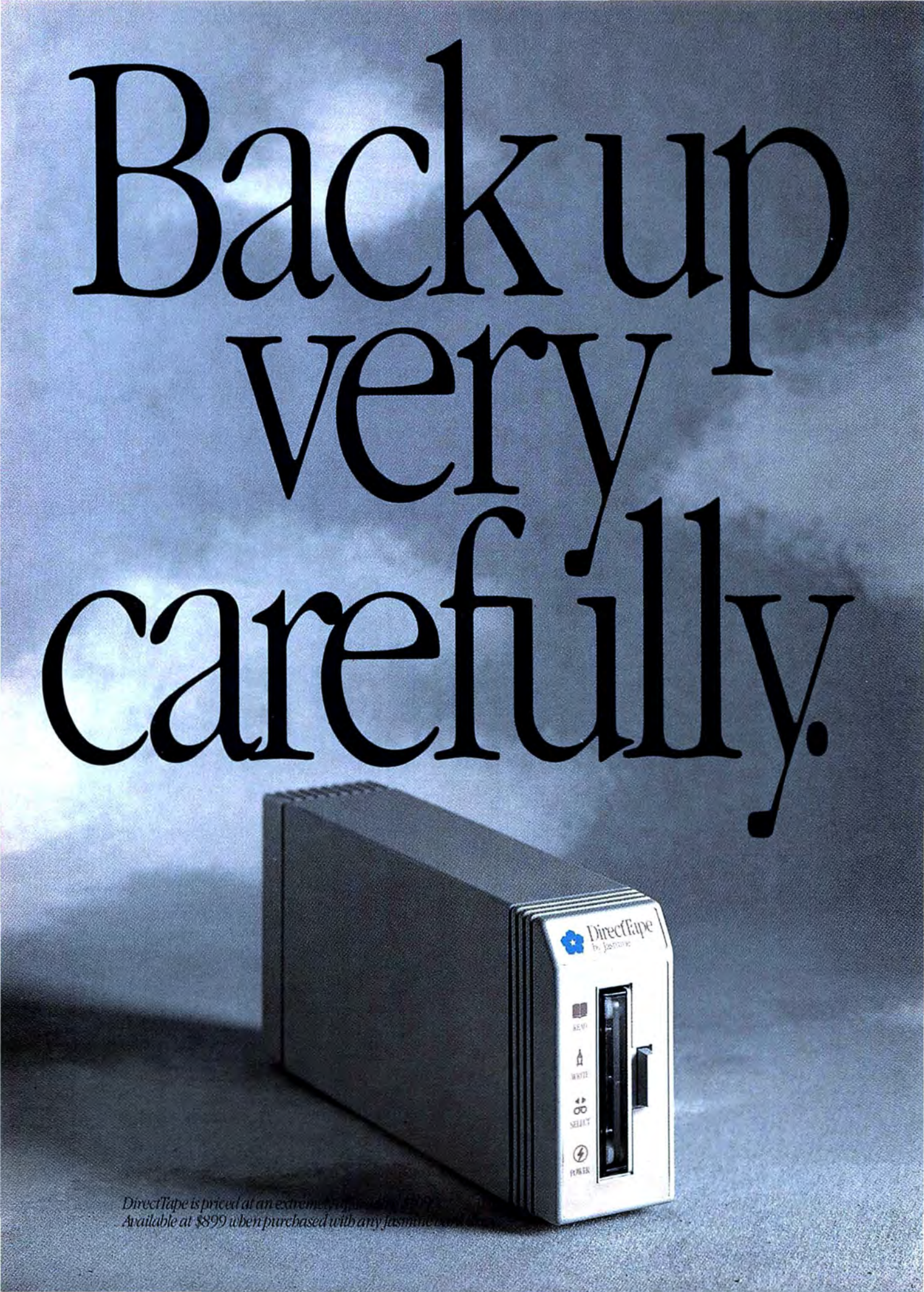
We decided to show you in real world terms how much information you can get on a screen. Since most Mac users have had some exposure to *Excel*, showing a spreadsheet seemed like a good way to translate resolution (pixel count and dots per inch) to some meaningful terms. The number of rows and columns visible on the monitors tested varied from 17 rows by 4 columns (in 12-point type) on the smallest monitor all the way up to a whopping 70 rows by 14½ columns on the LaserView.

We also placed a graphic (*Tiger* courtesy of Apple Computer Inc.), some text (courtesy of William Blake), and a line drawing (courtesy of IDD's *MacDraft)* in the same location in each spreadsheet.

GET THE PICTURE?

Before we photographed the monitors, we let them warm up for several hours and then adjusted them for maximum contrast. Each photograph was taken in a totally dark room, using only the light from the monitor itself. A four-level gray strip was included with each screen to allow for more accurate photoprocessing. Black-and-white film was used to avoid the "bluing" problem associated with color film.

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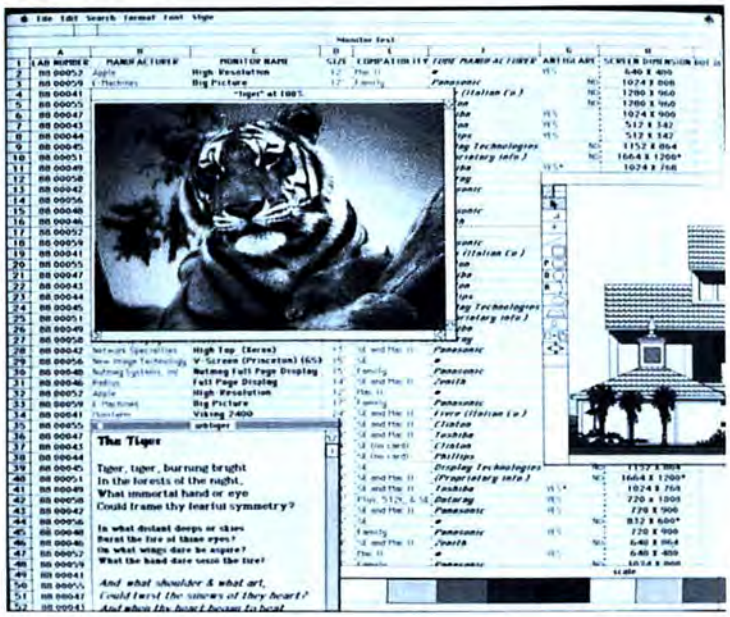
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Network Specialties's Big Top
A 19-inch monitor with a resolution of 1024 X 900

Warranties on monitors range from 90 days to 2 years, with 1 year being typical. The fine print can make a big difference. Check to see who pays for shipping (these are heavy monitors), whether you'll have to ship to your dealer or to the manufacturer for service, if there are differences in the coverage for the tube and the electronics, and whether extended coverage is available.

GET PHYSICAL: ERGONOMICS

The monitors vary in size and weight even more than they do in display area. They range from 20-pound weaklings to 62-pound behemoths, with footprints ranging from a petite 81 square inches to a BigFootprint of 340 square inches. Their depths don't vary as much, but a 17-inch depth is more than a tad tougher to fit on a standard desk than a monitor with a mere 13.5-inch depth. Naturally, the larger screens have greater weights and depths, owing to the larger tubes necessary for their impressive displays.

Surprisingly, these monitors — purchased to improve your viewing — don't all have tilt and swivel stands or easy-to-reach controls. (Tilt is the up-and-down angle of the display; swivel is the side-to-side rotation of the display.)

Check the length of the cable that's provided to hook the monitor to the Mac. It can be important. If you're just putting a single monitor on top of a Mac II or next to an SE or Plus, even the shortest cables provided will reach to the video card or connector. But if you plan to set a Mac II beside the desk, or you want to hook up multiple monitors (we sometimes had up to the maximum of six running off of a single Mac II), short cables can be useless.

The trade-off here is that some manufacturers claim that longer cables lead to more signal interference — and only a short cable will lead to FCC Class B (the higher class) certification for the full system. If necessary, you may be able to buy longer cables or have them made. (They won't be cheap.) We used extended monitor and keyboard cables from Kensington and experienced no problems. But, in general, use the shortest possible cable for all connections.

It's easy to use more than one monitor on the Mac II, but you'll need to watch power consumption carefully. If any one of a group of monitor boards draws more than two amps through the power supply, you could experience spurious results and system failures.

RESOLVED: MORE PIXELS

Monochrome monitors create images using two contrasting shades (often called "black" and "white," although the phosphor and background colors aren't necessarily those two colors). They create the illusion of shades of gray using different patterns of black and white "pixels" (picture elements). On a gray-scale monitor, the pixels themselves can take on a range of shades of gray, reducing graininess. A gray-scale monitor running in 1-bit (or black-and-white) mode can also simulate a monochrome display.

This test included monochrome monitors and one 4-level gray-scale monitor. Only a few of today's programs can create and manipulate gray-scale images, but many — if not most — will in the future. If you want to guarantee upward compatibility, it could be worth the higher cost of gray-scale, which we'll be covering in a future report. The best gray-scale moni-

THE UNDER-$100 ALTERNATIVE: STEPPING OUT II, A $95 SOFTWARE UTILITY FROM BERKELEY SYSTEM DESIGN, TURNS A STANDARD MAC SCREEN INTO A 9-INCH WINDOW TO A "VIRTUAL" BIG SCREEN THAT YOU CAN SHUTTLE AROUND ON USING YOUR MOUSE.

The Glaring Truth

One of the most common complaints about monitors is glare. The problem is even worse with larger screens, because there is more surface area for light to reflect off. What are some possible solutions to glare and are they worth the trade-offs they demand?

Any anti-glare treatment dims the output of your CRT. When you turn up the brightness to compensate for the dim screen, the images on the screen become fuzzier. That's because brightness and focus are generally inversely proportional; when the electrons hit the phosphor with more force, they tend to energize adjacent grains of phosphor, creating a fuzzier image.

SEE MY ETCHING?

One of the most common and least expensive anti-glare techniques involves etching the surface of the picture tube. The glass can be sand-blasted or chemically etched. This results in a microscopically irregular surface that scatters some of the ambient light randomly in all directions instead of bouncing it straight back into your eyes. For example, the reflection of a bare lightbulb on an anti-glare screen is dull and blurry, not a clearly defined object.

Unfortunately, etched screens also affect the light coming from the tube itself, causing a slight blurring of the image on the screen. This is less noticeable with text than with graphics.

SHEER THING

Another technique uses a plastic or nylon mesh screen that you place over the monitor screen. Such devices offer an inexpensive but often impractical solution, since dust collects on the fine mesh and can be difficult to remove. And, as with etched screens, the mesh cuts down on the light coming out of the tube and can reduce image clarity.

THE OCLI TRUTH

Monitor filters available from Optical Coating Labs Incorporated (OCLI) exploit the principle of lightwave cancellation to reduce glare. Ideally, the filter produces a lightwave 180 degrees out of phase with some of the light passing into the screen's surface. When two lightwaves that are 180 degrees out of phase strike the eye, they effectively cancel each other out and the eye perceives nothing at all. This cancellation is sometimes referred to as 'destructive interference.' (The phase difference won't be exactly 180 degrees, so the destructive interference is less than total.)

The OCLI coating is very effective and very expensive, sometimes adding more than $100 to the price of the monitor. A curious side effect of an OCLI coating is that fingerprints are more noticeable on OCLI-coated screens. Oil in fingerprints is reflective. Normally, these reflections just blend in with all the light bouncing off the surface of the tube. But when the screen doesn't reflect any light (or, at least, not as much), the fingerprints become the most reflective elements and they really stand out. Presently, only Moniterm offers the OCLI coating as an option. However, separate OCLI panels can be added to any monitor. Less expensive silica coatings are also available. Apple uses silica coatings on its monitors.

OPPOSITES SUBTRACT

Circular-polarizing filters affect the absorption and transmission of light. These work on a principle similar to the principle behind Polaroid sunglasses. A pair of these filters have the unusual property that, although either filter by itself is somewhat transparent (that is, much of the light entering the filter passes through it), a combination of filters placed against each other can become opaque (that is, most of the light is blocked).

If you put a pair of these filters in front of a monitor, the light you want to get rid of (the glare from external light sources) passes through the pair of filters twice — once on the way in and again on the way out, after reflecting off the surface of the screen. The ambient light becomes circularly polarized on its way in, and much of this polarized light is blocked by the filters on its way out. But the light produced by the monitor— the light you don't want to filter out — only passes through the filters once, when it's emitted from the monitor. So a smaller percentage of this light is absorbed by the filters. The result: less glare.

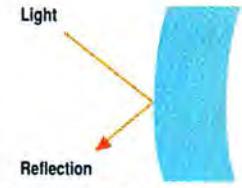
Polarizing filters come in many shapes and sizes. Plastic ones cost around $50; glass filters cost around $100. These filters come as add-on, after-market products and adhere to the bezel of the monitor with adhesive pads. These filters are relatively effective, although they do cut down on the brightness of the tube. And the surface of the filter itself can cause reflections. Plastic filters also can easily get scratched when they are cleaned.

Optical Devices of Camarillo, California, manufactures almost any kind of filter you might want. Kensington Microware of New York City offers an acrylic (more scratch resistant) neutral-density filter with an anti-reflective coating.

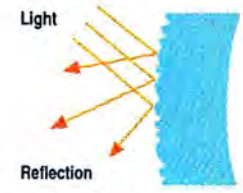
HIT THE LIGHTS

Ambient lighting conditions are important considerations, whether you're using an anti-glare screen or not. Environmental light reflected off the monitor is a major cause of CRT-related eye strain. You should never set up your monitor so that the screen is facing windows or other brightly lit areas (unless you have blinds). Area lighting, with well-lit work areas illuminated by lamps to the sides of the monitor screen, is less glare-prone than bright overhead lighting.

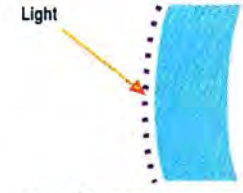
Is the added price and reduced brightness and clarity of monitor screens worth the reduction in glare? You may just prefer to lower the shades and turn the lights down. Keep in mind that even light-colored clothing causes reflections in the tube. So if you don't want to reflect light, don't wear white. (The IBM dress code doesn't help much in this regard.)



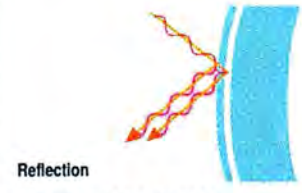
Untreated Screen



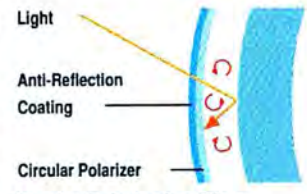
Etched Screen



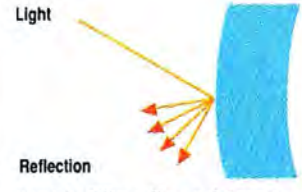
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Trapeze *(spreadsheet & graphics)* 159.
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Focal Point or Reports! 59.



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Fontographer *(LaserWriter font editor)* . . . 239.
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MacSnap 548S *(512E to 2 Meg w/SCSI)* . . 479.
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Multiplan 1.1 119.
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Hayden Software ... CP
Sargon III *(9 levels of chess)* 29.
Infinity Software ... CP
Go or Grand Slam Tennis 27.
Infocom ... CP
Leather Goddesses, Bureaucracy, Borderzone, Lurking Horror *each* 24.
Beyond Zork 30.
Classic Mystery Library: Moonmist, Suspect, & Witness 36.



Personal Computer Peripherals ... 2 years
MacBottom—High performance hard drives (21, 32, 45, or 70 Meg) with optional built-in modem. Formatted & ready to plug in. Includes spooler, back-up, & other utilities. . . **see listing**



"Unfortunately I was in the shower."

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"I ordered some programs and disks late yesterday afternoon and the person taking the order said that it would be delivered today.

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"Thanks."

William Lombardo
Modelmaker & Illustrator
New York, NY

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ol for your Mac.

Anti-glare Filter *(for MacPlus or SE)* $33.
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MasterPiece 400 64.
MasterPiece Mac II 105.
A-B Box *(mini DIN-8)* 64.
System Saver Mac 64.
Turbo Mouse *(specify MacPlus, SE or II)* . . 109.

Koala Technologies ... 90 days
MacVision 1.4 *(digitizer)* 169.

Kraft Systems ... 1 year
3-Button QuickStick *(specify Mac)* 39.

Kurta ... Lifetime
IS ADB Tablet *(graphics tablet)* 259.
Cordless 4 Button Cursor 99.

Migent ... 1 year
Pocket Modem *(ext. 300/1200 baud)* 115.

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A+ Mouse ADB *(for Mac SE & II)* 85.

Nutmeg Systems ... 90 days
Nutmeg 19" Monitor *(for MacPlus or SE)* 1495.
Nutmeg 19" Monitor *(for Mac II)* 1595.

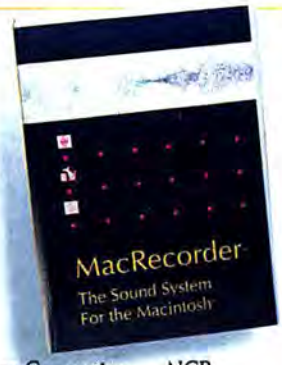
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TurboNet/AppleTalk connector cable 6.
TurboNet *(DIN8 or DB9 connector)* 27.

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Grappler *(universal parallel interface)* 79.

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Passport MIDI Interface 95.
MIDI Transport *(2 MIDI in, 5 MIDI out)* . . . 339.

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MacBottom HD 21 Meg SCSI 749.
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MacBottom HD 45 Meg SCSI 1149.
MacBottom HD 45 Meg SCSI w/Modem 1295.
MacBottom HD 70 Meg SCSI 1395.
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Mac II Power Accessory 42.

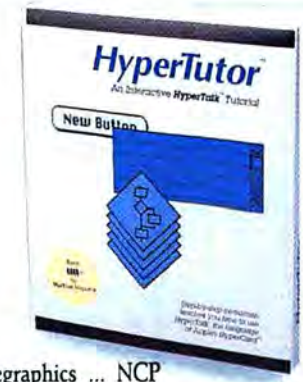
DISKS

Double-sided diskettes.

Sony 3½" DS/DD Disks *(box of 10)* 18.
Fuji 3½" DS/DD Disks *(box of 10)* 19.
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MAXELL 3½" DS/DD Disks *(box of 10)* . . . 20.

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Dow Jones News/Retrieval Membership Kit 24.

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Clean Image Ribbon Kit 12.

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External 800k Drive Cover 4.
ImageWriter II Cover 8.
Mac Plus or Mac SE Cover Set 10.

Goldstein & Blair
The Macintosh Bible *(incl. 2 free updates)* 16.

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Macinware SE *(Mac SE carry case)* 79.

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Teakwood Roll-top Case *(holds 90 disks)* . . 20.
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Moustrak Pad *(standard 7" x 9")* 8.



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Available colors: black, blue, brown, green, orange, purple, red, yellow, silver and gold.
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Targus (Canada) Ltd.
ImageWriter II Carry Case *(black)* 49.
MacPlus Carry Case *(black)* 59.

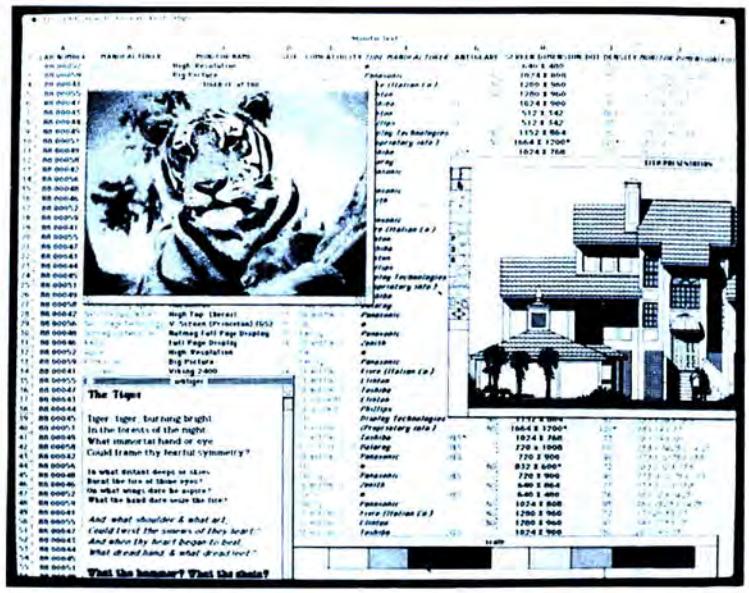
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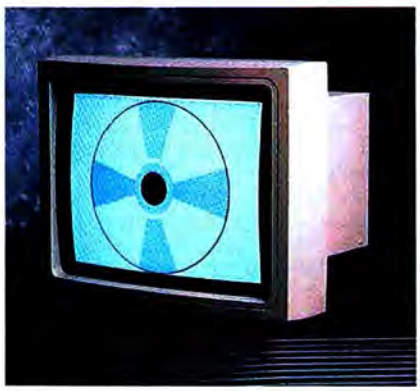
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Continental US: Barring massive computer failures and other natural or unnatural catastrophes, all non-C.O.D. orders phoned into MacConnection by 8 PM EST will ship Airborne the same night for next day delivery, except for those within UPS Ground Zone 1 (which is also an overnight service). The total freight charge on any order placed with MacConnection is now $3. Backorders will also ship Airborne overnight at no additional charge. Some areas require an additional day delivery.

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Moniterm's Viking 1
A 19-inch monitor with a resolution of 1280 X 960

A LOW-RESOLUTION SCREEN CAN BLOW UP MAC OUTPUT SO THAT IT'S BIG ENOUGH TO USE INSTEAD OF AN OVERHEAD OR SLIDE PROJECTOR FOR SMALL-GROUP MEETINGS AND PRESENTATIONS.

tors provide 256 (or 8 bits' worth) different shades of gray. (Color monitors can produce 16.7 million different shades — 24 bits' worth — but who needs or can distinguish that many shades of gray?)

No matter how many shades your monitor sports — 2, 4, or 256 — it shows those shades as rows of pixels on the face of the picture tube. (All the monitors we tested were based on cathode ray tubes — no LCD or other flat-panel displays are covered in this report.) The standard 9-inch Macintosh screen has 72 pixels to the inch — and so has a 72-dpi (dots per inch) resolution. Some of the monitors tested have exactly that same 72-dpi resolution. On these, letters and numbers appear exactly the same size as they do on the original Macintosh display. The main advantage of these big screens is simply that they give you more room to play in. Other monitors use different resolutions — ranging from 55 dpi all the way to 100 or even 120 dpi — and there are pros and cons of both higher and lower screen resolutions.

A monitor can make an image bigger by blowing up a fixed number of pixels over a larger area (reducing the screen's resolution in the process). That is, if you map the standard Mac screen pixel-for-pixel onto a screen with more space between pixels, everything will appear larger than it does on the original Mac screen. That can be useful if you want to blow things up, to see them more clearly from a distance (even though you lose resolution). This is what the MacLarger and EasyView monitors do.

Conversely, a monitor with a resolution higher than 72 dpi displays a shrunken image. This can get hard to read, but lets you squeeze more text or graphic information onto the screen at once. The Sigma LaserView has a high-resolution 120-dpi option that squeezes almost 2 million pixels (1664 horizontally X 1200 vertically) into its 19-inch screen.

Unfortunately, any resolution other than 72 dpi distorts the Mac's WYSIWYG relationship with PostScript laser printers. A bit-mapped screen font, for example, uses a specific pattern of pixels to define a 10-point letter *W*. This pattern is based on the assumption of a 72-dpi screen. That same pixel pattern will appear much smaller on a 100-dpi screen (where the pixels are closer together), but both will print out the same size on a LaserWriter (which has its own set of fonts). Although the term "high resolution" sounds desirable, it isn't always. (You might think of it as "tight resolution.") For desktop publishing, high resolution can mean distorted and hard-to-read layouts.

This problem is less critical in some other big-screen applications — computer-aided drafting and design, for example — where most of the image elements are lines and algorithmic objects (as opposed to bit-mapped fonts) and where, in any event, it's common to frequently zoom in and out to arbitrary magnifications.

BRIGHT LIGHTS, BIG CONTRAST

Two more parameters to worry about are contrast (the relative difference between dark areas and light areas) and brightness (how brightly the image is projected from the screen). You need to be able to adjust the contrast and brightness to fit the room you're in. Otherwise, the screen could be washed out in a bright room or could turn into a glaring beacon in a dim room.

Most monitors have controls for ad-

Getting the Picture

VIDEO BASICS

The Macintosh uses a high-resolution bit-mapped display.

A bit image is a collection of bits in memory that represent a two-dimensional space. If a bit's value is 0, its pixel is white; if the bit's value is 1, the pixel is black.

On the Macintosh II, graphics can be represented by a simple monochrome bit image or by a pixel image that conveys additional information for each bit, either color or gray scale.

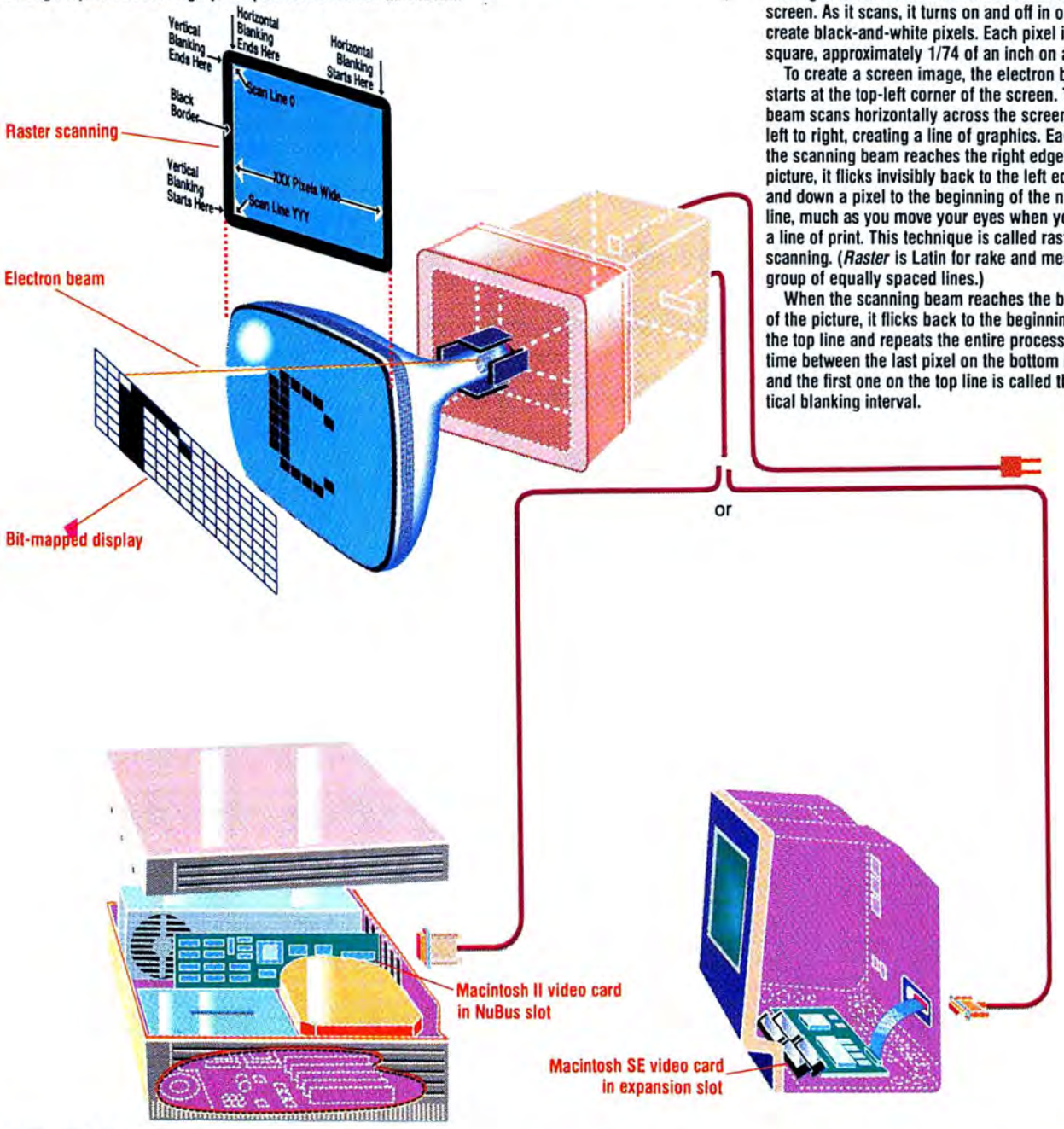
Because the video display is continually being refreshed (that is, generated over and over), the data being used to generate the display must be available all the time. A program draws by writing to the area in memory called the screen buffer. On the Macintosh, however, this is not done directly, but through a powerful set of graphics procedures called QuickDraw.

RASTER SCANNING

The Macintosh video display is created by a moving electron beam that scans across the screen. As it scans, it turns on and off in order to create black-and-white pixels. Each pixel is a square, approximately 1/74 of an inch on a side.

To create a screen image, the electron beam starts at the top-left corner of the screen. The beam scans horizontally across the screen from left to right, creating a line of graphics. Each time the scanning beam reaches the right edge of the picture, it flicks invisibly back to the left edge and down a pixel to the beginning of the next line, much as you move your eyes when you read a line of print. This technique is called raster scanning. (*Raster* is Latin for rake and means a group of equally spaced lines.)

When the scanning beam reaches the bottom of the picture, it flicks back to the beginning of the top line and repeats the entire process. The time between the last pixel on the bottom line and the first one on the top line is called the vertical blanking interval.



EXPANSION SLOTS

The Macintosh SE expansion slot allows you to use a variety of monochrome video devices, which are added to the system through a 96-pin connector that provides power, timing, and direct access to the 68000 bus. The Macintosh II has six expansion slots; each slot consists of a 96-pin DIN connector and uses the NuBus interface.

These slot-based cards have screen buffers located on the video cards and have specialized device drivers on the cards for communication with the rest of the system. These cards must include information about their capabilities and possible configurations in ROM. Video cards also have their own parameter RAM. For instance, you can use the Control Panel desk accessory to set the pixel depth; this information is stored in a card's parameter RAM.

adapted from *Technical Introduction to the Macintosh Family*, Copyright 1987, Apple Computer, Inc., published by Addison-Wesley (617) 944-3700 x 2643

Monitor Characteristics



CRT Size: This is the diagonal measurement of the picture tube as it comes from the factory.

Compatibility: Except for EasyView and MacLarger, a separate video card is required to connect a given monitor to each member of the Mac family—the Plus, SE, and II. (Most monochrome monitors are only compatible with one or two Mac models.)



Screen Dimensions: This number represents the number of pixels displayed along the horizontal and vertical axes.

Dot Density: This is a measure of screen resolution, or how many dots or pixels are displayed per inch (dpi). The dot density indicates how compressed or spread out characters and graphics will appear. High-resolution screens compress characters since they pack more pixels into a smaller space; conversely, low-resolution screens enlarge characters.



Power-On LED: The screens of most monitors are black when the computer is turned off, so this indicator light might be the only indication that a monitor is on.

Brightness and Contrast Controls: These controls let you change the brightness and contrast settings in response to the ambient lighting changes and your visual preferences.



Refresh Rate (Vertical Scale Rate): This is the number of times per second (or hertz, abbreviated Hz) that an image is put on the screen. Some people perceive a flickering screen if the monitor refreshes at a rate less than 65 Hz.

Horizontal Scan Rate: This is the number of lines that are displayed per second. It depends on the number of vertical picture elements and the refresh rate. For example, the number of lines displayed (vertical resolution) times the number of times they get

Landscape Monitors (alphabetical by manufacturer)

Features	Units	Apple	E-Machines	Moniterm	Moniterm	Network Specialties	Nuvotech
Monitor Name		High Resolution	The Big Picture	Viking 2400	Viking 1	Big Top	EasyView
Monitor Sizes:							
CRT Size		12"	17"	24"	19"	19"	14"
Exposed Screen Size		11.25"	16"	23.5"	19"	18.5"	13"
Active Screen Size		8.38" x 6.25"	12.88" x 9.25"	17.38" x 13.25"	13.38" x 10.38"	13.5" x 11"	9.38" x 7"
Compatibility:							
Plus			√				
512K			√				
SE			√	√	√	√	√ (2)
Mac II		√	√	√	√	√	
Screen Dimensions	pixels	640 x 480	1024 x 808	1280 x 960	1280 x 960	1024 x 900	512 x 342
Dot Density	dpi	76	85	72	91	80	57
Monitor Dimensions	H x W x D inches	10 x 12 x 14.25	16 x 15.25 x 14.75	17 x 20.5 x 17	14 x 17.5 x 15	20 x 19 x 15	12 x 13 x 13
Footprint	square inches	171	138	340	262	195	81
Weight	pounds	17	38	50	40	62	20
Anti-glare		Silica coating		OCLI (6)	OCLI (6)	Etched	Etched
Tilt/Swivel Stand						√	√
Power Switch		√	√	√	√	√	√
Power LED		√				√	√
Controls:							
Brightness		√	√	√	√	√	√
Contrast		√		√		√	√
Other							H size
Vertical Scan (Refresh) Rate		67 HZ	60 Hz	66 Hz	66 Hz	60 Hz	60 Hz
Horizontal Scan Rate		35 kHz	51 kHz	66 kHz	66 kHz	64 kHz	22 kHz
Video Amp Bandwidth		22 MHz	80 MHz	160 MHz	160 MHz	100 MHz	25 MHz
Power Consumption	watts	50	70	100	100	110	38
Power In/Out		√	√				
Video Input		digital - TTL	digital diff. - ECL	digital - ECL	digital - ECL	digital - TTL	digital - TTL
Pixel Clock		22 MHz	68 MHz	110 MHz	110 MHz	80 MHz	N/A
Connector Type		DB-9	DB-9	DB-9	DB-9	DB-9	DB-9
Cable Length		3'	2'	6'	6'	5'	3'
Tube Manufacturer		Clinton	Panasonic	Fivre	Clinton	Toshiba	Clinton
Price (8)							
Plus, SE		N/A	$1,995	$2,595	$1,995	$1,895	$395
Mac II		$898	$1,995	$2,595	$1,995	$1,995	N/A
Warranty		90 days	90 days	90 days	90 days	1 year	2 years

1) Four-level gray scale
2) Doesn't use the SE slot
3) Low resolution is 832 X 600
4) 1024 X 832 with panning
5) 60-dpi low resolution
6) Optional feature at additional cost
7) Discount to user groups
8) All prices include video cards
9) $695 add-in board was announced at press time

displayed in one second (refresh rate) approximates the horizontal frequency.

Power Consumption: A monitor rated at 100 watts uses as much electricity as a 100-watt light bulb.

Power In/Out: Every monitor has a power-in connector. Power-out connectors let you easily add an additional monitor so they may be turned on or off together.



Video Input: Transistor logic (TTL) and emitter-coupled-logic (ECL) are used for digital video signals. TTL is not as fast or as expensive as ECL. When two digital lines are used in differential mode, you get better noise immunity; a noise spike will appear on both lines, and since the input is looking for a difference in the two lines, the noise spike will be ignored. Analog inputs are more frequently used with gray-scale and color monitors. Composite input involves sending all the information to put the picture on the screen (all the sync and video signals are sent together instead of breaking them out to individual lines).



Pixel Clock: The pixel clock pumps out the pixels and does not stop even during horizontal and vertical retrace. You can determine the speed of the pixel clock by multiplying horizontal frequency by horizontal resolution.

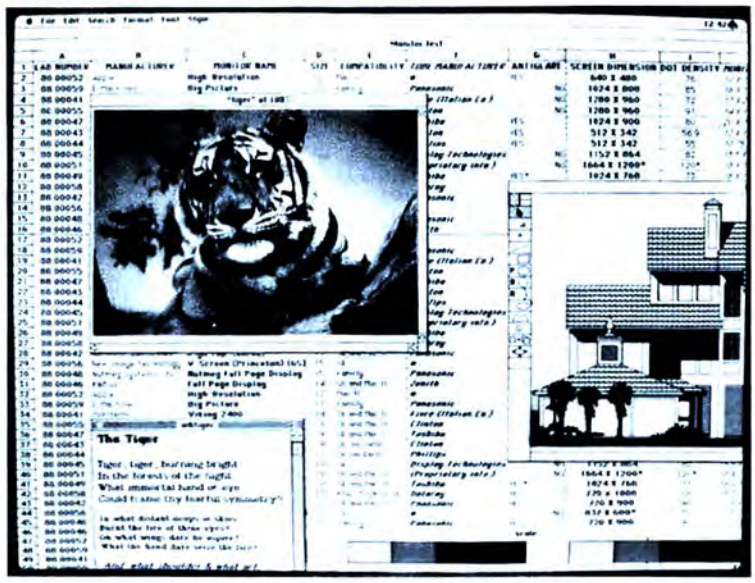
Connector Type: The standard cable type is a 9-pin "D" connector. However the pin-outs are by no means standard.

Cable Length: This is more important for a Mac II monitor because you can't place these big monitors on top of a Mac II. Many people prefer to place the Mac II under their desk (on a vertical stand on the floor), which requires a longer cable. If interference is an issue, make sure the cable is FCC-approved. Generally, you'll have fewer problems with electromagnetic or radio frequency interference with shorter cables.



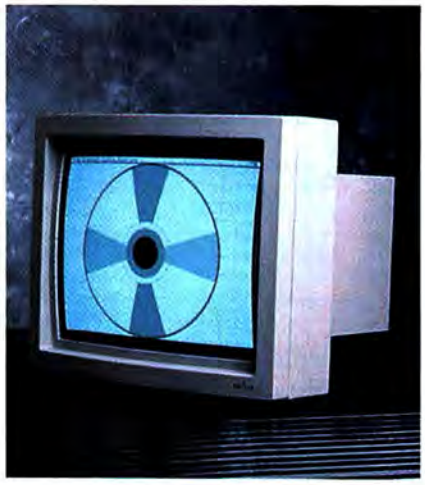
				Portrait Monitors			
PowerR	**Radius**	**Sigma Designs**	**SuperMac Technology**	**Micro Display Systems**	**Network Specialties**	**Nutmeg Systems, Inc.**	**Radius**
MacLarger	Two Page Display	LaserView (1)	Monochrome Monitor	MacGenius	High Top	Nutmeg Full Page Display	Full Page Display
12"	19"	19"	19"	15"	15"	15"	14"
11.75"	18.5"	18.25"	18.5"	13"	13.25"	13.25"	14"
9.25" x 7"	14.25" x 11.25"	13.88" x 10.25"	13.75" x 10.25"	7.75" x 10.38"	8" x 10.38"	8" x 10.38"	8.13" x 11.25"
				√		√	
				√		√	
√ (2)	√	√	√	√	√	√	√
		√	√		√	√	√
512 x 342	1152 x 864	1664 x 1200 (3)	1024 x 768	720 x 1008	720 x 900	720 x 900	640 x 864
55	82	120 (5)	73	100	90	90	77
10.75 x 12 x 12	15.5 x 18 x 16.5	18 x 19 x 17	16 x 19 x 16	16 x 12.25 x 13	17.5 x 12.75 x 13.5	17.5 x 12.75 x 13.5	13.5 x 11 x 13.8
144	288	100	195	100	100	100	144
23	55	47	38	30.5	27.5	27.5	35
Etched			Etched	Etched	Etched	Etched	
		√	√	√	√	√	√
√	√	√	√	√			√
√		√	√	√			
√	√	√	√	√	√	√	√
√	√	√	√	√	√	√	
hold, V size		center				H/V size, center, focus	
54 Hz	72 Hz	60 Hz	66 Hz	60 Hz	62 Hz	62 Hz	69 Hz
22 kHz	65 kHz	75 kHz	54 kHz	63 kHz	63 kHz	63 kHz	64 kHz
12 MHz	100 MHz	160 MHz	100 MHz	100 MHz	80 MHz	80 MHz	52 MHz
45	100	100	110	110	90	90	90
							√
composite	analog	digital diff. - ECL	digital - ECL	digital - TTL	digital - TTL	digital - TTL	digital - TTL
N/A	100 MHz	160 MHz	72 MHz	60 MHz	60 MHz	60 MHz	52 MHz
phono	BNC - 6' coaxial	DB-9	DB-9	DB-9	DB-9	DB-9	DB-9
3'	6'	6'	4'	4'	6'	3.5'	6'
Phillips	(proprietary)	(proprietary)	Toshiba	Dataray	Panasonic	Panasonic	Zenith
$449	$2,390	$2,295	$1,990	$1,495	$1,295	$1,599 (7)	$1,690
N/A	$2,390 (9)	$2,395	$1,990	N/A	$1,395	$1,799 (7)	$1,790
1 year	90 days	1 year	1 year	1 year	1 year	90 days	90 days

14.25" ▶
11.25" ▼



justing both of these values within limits, but all also have natural boundaries for the values. The greater the potential brightness and contrast, the better, as long as you can turn them down.

Both contrast and brightness are also affected by the presence or absence of an anti-glare surface on the monitor's face. Some monitors just have a polished glass faceplate and can virtually become mirrors. They reflect so much glare from other light sources that all you can see in the display are your own eyeballs or a Dalíesque vision of a window. The light falling on the exterior of some monitors can even excite some of the phosphors on the inside of the tube face, cutting down on their contrast. However, in a dimly lit room, these moni-



Radius's Two Page Display
A 19-inch monitor with a resolution of 1152 X 864

It's Not All Black and White

What makes one monitor better than another? We discovered a world of trade-offs when we examined monochrome monitor features. Take the variety of phosphor colors, for example. The standard for white is based on the color generated at 9300 degrees Kelvin, but every manufacturer seems to have come up with its own secret formula based partially on which shade of white it feels looks most pleasing to the eye.

Another trade-off deals with phosphor persistence. With high-persistence phosphors, the image lasts longer on the screen after the electron beam has created it. Higher persistence gives you less flicker but also can lead to smearing or ghosting when the image changes. (Ghosting may be acceptable when doing word processing, where the image doesn't change much, but it's a nuisance when creating graphics.) Most manufacturers work around this problem by using a refresh rate well above 60 Hz.

Choosing a screen resolution creates another set of trade-offs. On the one hand, we have Apple's 72-dpi displays which correspond to the 72-dpi ImageWriter, giving you identical output on the screen and printer. On the other hand, higher resolution makes text much smaller and the size and shape of the output will no longer match what is on the screen.

Then there's the productivity debate. With more information available at once on a big screen, less time is spent scrolling around. On the other hand, it takes longer to get the mouse from one part of the screen to the other. The trash can is farther away, as are the scroll bars. (One solution to this last problem is a public domain program that places both up and down scroll arrows at the top and bottom of the scroll bar.)

Another trade-off: clarity and focus versus raster size. Most monitors have trouble maintaining a sharp focus at the edges of the tube. Some manufacturers have chosen to shrink the raster (reduce the active screen area) so as not to use those problematic outer edges.

Anti-glare techniques involve more trade-offs. All anti-reflection devices reduce screen brightness to a certain degree, no matter how efficient they are.

Figure out where you stand on each of these trade-offs. Otherwise, you could wind up with an unsuitable monitor on your hands; then you'll have to look into trade-ins.



SINCE THERE'S MORE RASTER SCANNING GOING ON (AND SINCE THERE'S A BIGGER INVESTMENT AT STAKE), IT'S EVEN MORE IMPORTANT TO USE A SCREEN-SAVER UTILITY (SUCH AS PYRO!) ON A BIG MONITOR THAN ON A STANDARD MAC SCREEN.

Low prices, great service

Hard Drives

CMS Mac Stack SD Series
(Mac Plus, SE, II)
SD 20 Megabyte $549
SD 43 Megabyte $789
SD 60 Megabyte $825
SD 80 Megabyte $1249
SD 102 Megabyte $1289
SD 140 Megabyte $1389

CMS Pro Series Internal Mac SE/II
20 Megabyte SE rear $489
30 Megabyte SE rear $529
45 Megabyte SE rear $689
43 Megabyte Mac II $645
60 Megabyte Mac II $699
80 Megabyte Mac II $1145
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91 DLX $1549
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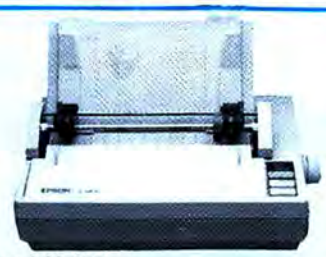
Everex 60 Megabyte External
60T $895

CMS 60 Megabyte External
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Sigma's Laserview
A 19-inch monitor with a high-res mode of 1664 X 1200 and a low-resolution option of 832 X 600

tors might show the brightest, most focused image.

Other monitors use an anti-glare surface — either an etched glass that diffuses reflections or a special coating that can make them easy to read even in the brightest light. Contrast and brightness are also affected by the type of glass used in the tube and the electronics that are shooting electrons at the screen.

When checking contrast, you may notice that changing a large area from white to black, or vice versa, briefly deforms the "raster" line laid down by the electron beam, a line that should be straight from edge to edge. Some slight bending is acceptable, but large deviations can be caused if the high-voltage electronics are inadequately regulated. If you notice bars or variations at the left edge of a single solid area of "white," the system may have "yoke ringing," which you don't want. Compare two or more monitors side-by-side to see the subtle influences of such effects.

PHOSPHOR, THE FRIENDLY GHOST

Another set of monitor parameters relates to the chemical "phosphor" on the inside surface of the picture tube. A carefully aimed stream of electrons strikes the phosphor, exciting it to give off the light that you see. Different tube makers use different phosphors, and some manufacturers custom design their phosphor color to get it just right. A "warm" phosphor gives off a slightly reddish-yellow light which is perceived as a more true white, while a "cool" phosphor gives off more of a blue tint. Another difference in phosphors is that some have greater "persistence"; they continue glowing for a longer time after the electrons no longer strike them. High persistence can help fight "flicker" but can also lead to excessive "ghosting."

Like the glow left in your eye by a flash in a dark room, ghosting is the afterimage that remains after that image is supposed to be gone. On some monitors, you can still see the imprint of a pull-down menu for 5 or 6 seconds after that menu pulled back to the menu bar. A related problem is "smearing," where a moving object on the screen leaves behind a trail of ghosts. A good example of smearing is a cursor that seems to have a comet-like tail. Move a cursor fast enough on most monitors and you'll see at least a little bit of smearing. Just watch out for extreme cases.

HOCUS-FOCUS

Another important monitor characteristic is focus. Focus is the spot size that the electronics can create on the tube face. It varies from place to place on the screen and is rarely as good at the edges of the screen as it is in the center. And focus adjustments that improve center focus often hurt edge focus.

Some color monitors use the newer so-called flat tension technology (also becoming popular in consumer TVs) that has more uniform focusing ability. None of the monitors tested in this report, however, use this technology.

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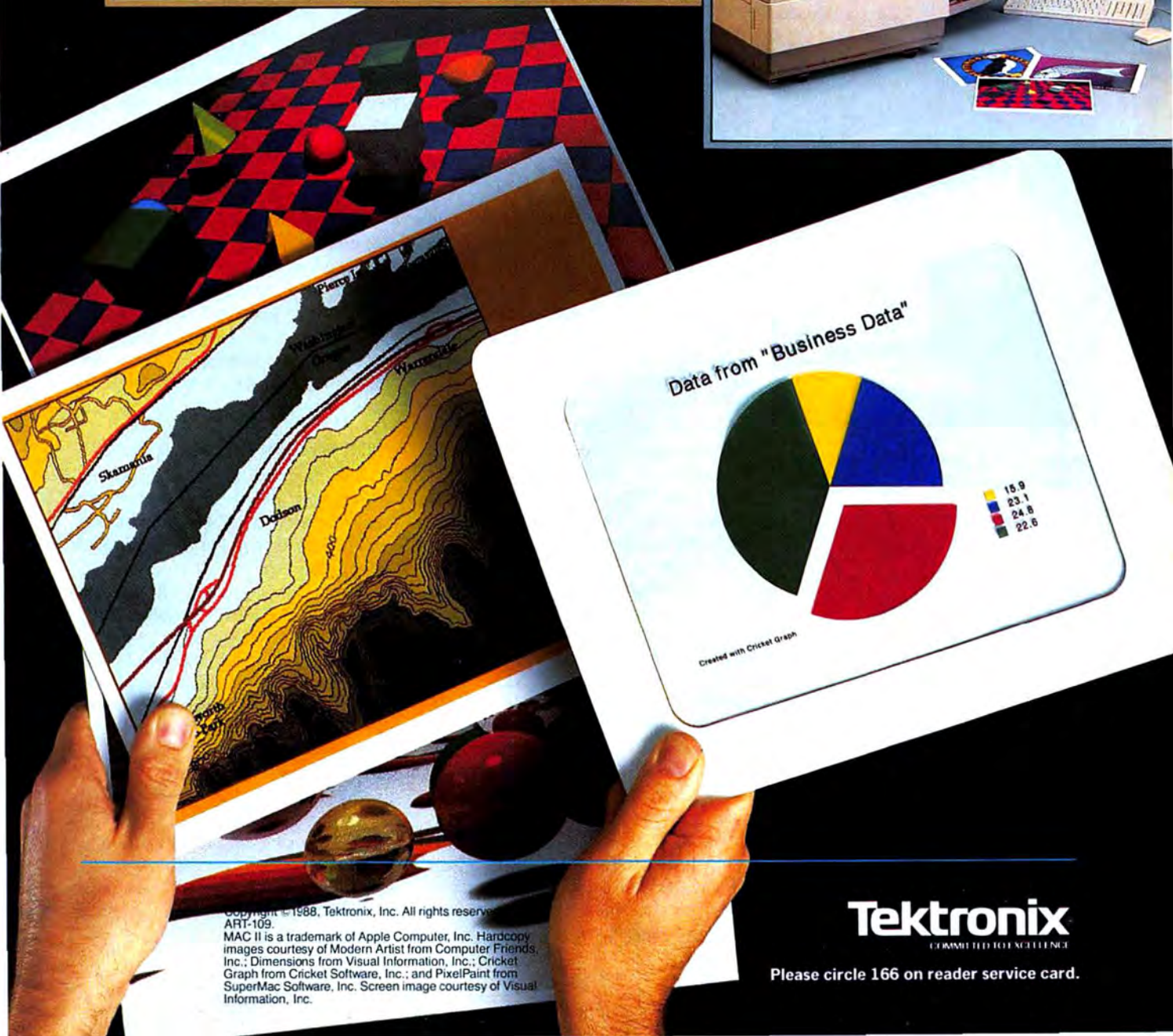
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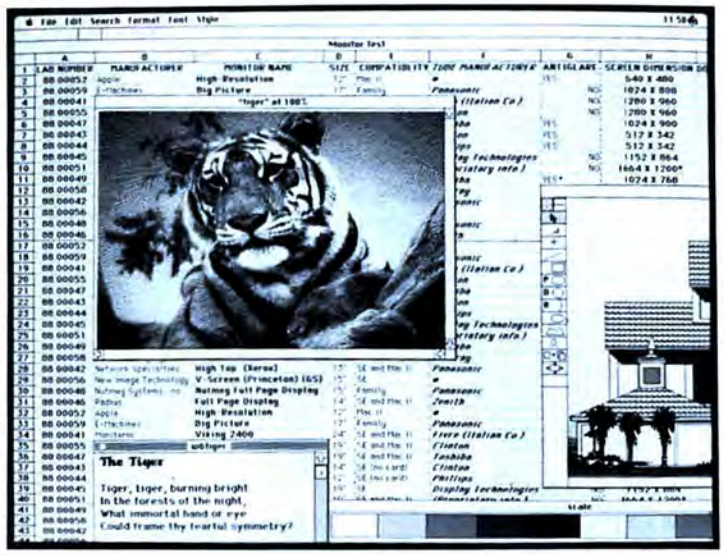


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13.75" ▶
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SuperMac Technology's Monochrome Monitor
A 19-inch monitor with a resolution of 1024 X 768

Depending on your application, tight focus across the full screen to the edges could be important or merely a nice feature.

MY FIEND FLICKER

I mentioned flicker when talking of phosphors. The display is "painted" by a single electron beam that moves from left to right, lighting up pixels where necessary. After painting a line or "raster," it turns off while the electronics move it back to the left side to start again on the next line down. When it has painted the last line at the bottom of the display, it turns off for a "vertical retrace" or "vertical blanking interval" while the electronics move it back to the top-left position for starting again. The electron beam then moves back through the entire display, painting all of the lines again. An "interlaced" display paints one set of lines and then returns and paints another set that falls in between the first set, generating every other line with each vertical pass at the display. Most high-quality monitors are non-interlaced, painting all of the lines on each pass. (TV images, by way of comparison, are interlaced.)

The "horizontal scan rate" tells how quickly individual lines are painted, and the "vertical scan rate" (or "refresh rate") tells how quickly entire screens are laid down. A low vertical scan rate combined with a short-persistence phosphor causes "flicker": The eye sees one screen fade away and then sees the screen reborn on the next scan.

There's a trade-off to be made between phosphor persistence and refresh rate; every pair of eyes perceives a different delicate balance between flicker on the one hand and ghosting and smearing on the other, so there's no absolute ideal when comparing monitor specs. A 65 Hz scan rate is generally considered sufficient to eliminate flicker. Increasing the vertical scan rate reduces the likelihood of flicker, but requires more expensive electronics.

THROW 'EM A CURVE

If you look at lines drawn from edge to edge and at objects displayed near the edge of any large monitor, you'll probably see some deviations from perfect geometry and linearity. The lines will sometimes curve off at the edge, and circles, for instance, will sometimes squash into ellipses. The larger the monitor, the more difficult to reach perfection, but some systems are better than others in these respects. We used a shareware program called *Test Pattern Generator* to draw test patterns for geometry checks. You might want to get a copy to take with you to the computer store when you're ready to put a monitor through its paces.

WHO'S MINDING THE MONITOR?

Most monitors come with special utilities that define and control the way the monitor interfaces with the *System*; this turned out to be a bigger factor than we initially suspected. Some monitors, typically the SE upgrades such as the MacLarger and the EasyView, don't come with any software. They are driven directly by the original display electronics and behave just as the standard Mac screen would. Mac II monitors come with a cdev you add to the System Folder. The cdev is a piece of code that lets the *System* know what information that monitor needs.

The monitor's cdev, which shows up in the Control Panel desk accessory, lets you select the number of color or gray-level shades you want. It can also help you manage multiple monitors by showing where their displays lie rela-

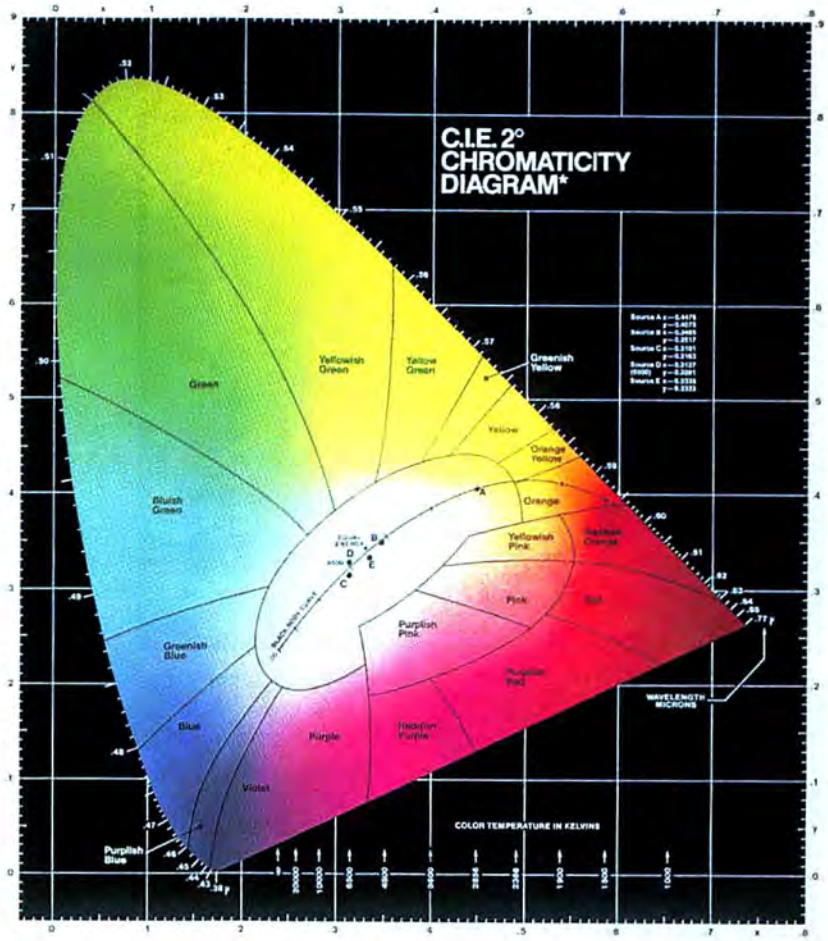


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Chromaticity Chart

This chart graphs the colors of the phosphors used by different CRT manufacturers. The measurement of these colors is based on the CIE (Commission Internationale de l'Eclairage) "standard observer" values, which have been used since 1931. We measured each monitor's chromaticity using a Minolta Chroma Meter, which provides a set of X and Y coordinates based on the CIE chart. All the phosphors on monochrome monitors fall in the center, or white, area of the color chart. But some shades of "white" are nearer to the blue and lavender, or "cool," side of the spectrum, while others fall closer to the red and yellow, or "warm," side. Whether you prefer warmer or cooler whites is a subjective judgement, and if you compare monitors, you'll notice that differences in phosphor tones are pretty apparent to the eye. Most of us in the Lab felt that the warmer-looking screens made for the "easiest" viewing.

(Courtesy of Photo Research, Division of Kollmorgen, Chatsworth, California)

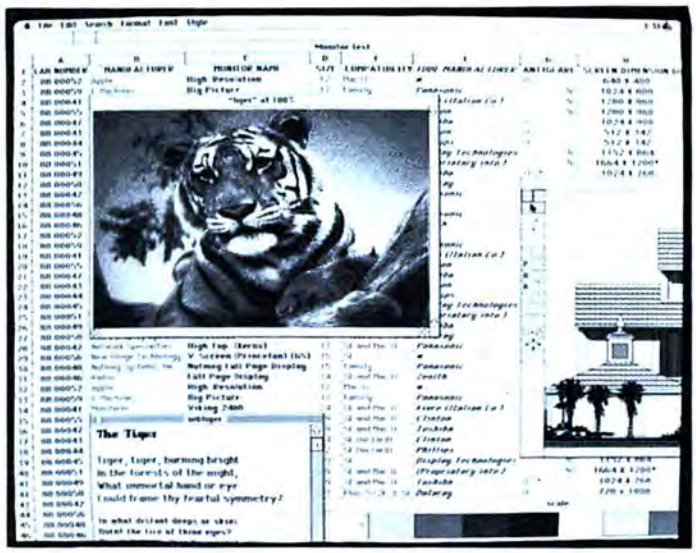


Find That Phosphor - You can find the phosphor color for each monitor by locating the intersection of the X and Y axes (as indicated by the numbers in the chart below) in the central white area of the chromaticity chart.

Phosphor Spectrum Test

Portrait Monitors	X Axis	Y Axis
Apple Mac Plus/SE internal monitor	246	252
Apple High-Resolution	260	264
E-Machines Big Picture	304	341
Moniterm Viking 2400	263	290
Moniterm Viking 1	280	290
Network Specialties Big Top	275	312
Nuvotech Easyview	341	366
PowerR MacLarger	256	264
Radius Two Page Display	285	282
Sigma Designs LaserView (Four-level gray scale)	332	360
SuperMac Technology Monochrome Monitor	270	305
Landscape Monitors		
Micro Display Systems MacGenius	351	370
Network Specialties High Top	306	344
Nutmeg Systems, Inc. Nutmeg Full Page Display	306	344
Radius Full Page Display	279	307

Lower numbers on both axes indicate 'cooler' or bluish violet phosphors and higher numbers indicate phosphors that are closer to the 'warmer' red, yellow side of the spectrum. We have included the numbers for the Macintosh Plus/SE internal monitor as a familiar basis for comparison. The Mac's screen has the coolest phosphor of all, followed by the other two monitors manufactured by Apple, MacLarger and the 12-inch High-Resolution Monitor.





E-Machines's The Big Picture
A 17-inch monitor with a resolution of 1024 X 808

tive to each other (that's so you can move the cursor from one to another), and which monitor will have the main menu bar. You can use this display to alter the virtual positions of the monitors and to drag the menu bar from one to another, though you'll then have to reboot to see the menu bar take up its new place of residence. Some manufacturers offer the necessary software that lets you use multiple monitors on a Mac Plus or SE system.

Software can also add other spice to your display work. Some systems have optional large-type menus (a standard-size menu can practically disappear on a large screen), tear-off menus, screen-saving timers (for turning off the display when not in use), and so forth.

WINDOW SHOPPING

A big screen is one of the more expensive peripherals you can buy, so you'll want to invest carefully, finding a monitor that will be good for the long haul. [*You might call it a . . . oh, never mind. — Ed.*] Picking the best monitor inevitably involves trade-offs. Many monitor characteristics feed upon one another, and some are just plain contradictory. For example, greater brightness can lead to loss of focus, and reducing flicker can lead to ghosting. And the subjective aspects of how different eyes perceive different phosphors shouldn't be overlooked. Selecting a monitor is a little like picking a pair of glasses — put them on and try them out before you agree to make them your daily window on the world.

PHILLIP ROBINSON HAS BEEN A TECHNICIAN, R&D ENGINEER, PRODUCTION MANAGER, AND TECHNICAL WRITER. FORMERLY A SENIOR EDITOR WITH BYTE, HE IS NOW WRITING FOR DESKTOP ENGINEERING NEWS AND HOPING TO TRAVEL TO JAPAN BEFORE THE YEN HITS 90 TO THE DOLLAR.

KUDOS

MacUser Labs wishes to acknowledge the following people for their assistance in this project. Thanks to:

Gary Henry, MacUser Labs, testing technician.

Larry Pina for the *Test Pattern Generator*.

Paul Swedberg of Group W Satellite Communications for advice on testing methodology.

Diane Wilde, MacUser Labs, report writer and testing technician.

Monochrome Monitor Fact Sheet

Moniterm Viking 2400

The Viking 2400 is a large industrial-looking monitor with a 24-inch screen. The monitor case has exposed Phillips-head screws on the top and sides and is not as nicely finished as the other monitors. The on/off switch and the brightness control are inconveniently located on the rear panel and there is no on/off indicator light on the front.

The phosphor on the Viking 2400 is not as lavender as the SE screen's phosphor, but is a sky-bluish shade of white. The screen has not been treated for glare. When displaying characters, the monitor's focus is softer and fuzzier than the focus on the SE screen, but with CAD/CAM applications the line drawings show up crisp and clear.

There were some linearity problems on the monitor we tested; it elongated shapes at the top of the screen and constricted shapes at its bottom. The focus was best in the center and less sharp on the edges, especially on the right side.

The same video card can be used for both the Viking 1 and the Viking 2400. It gives the same resolution of 1280 X 960 pixels, with 72 dpi on the 2400.

OFF

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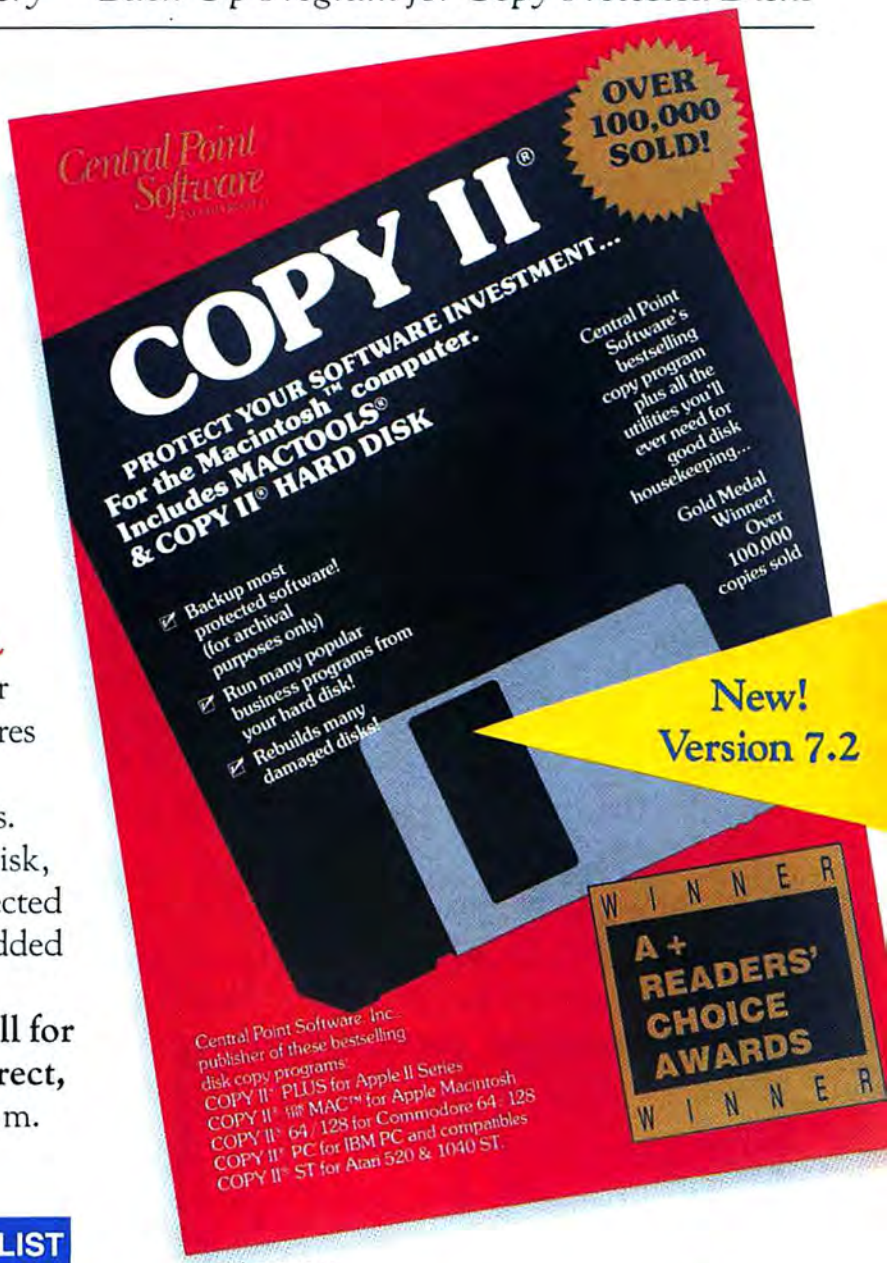
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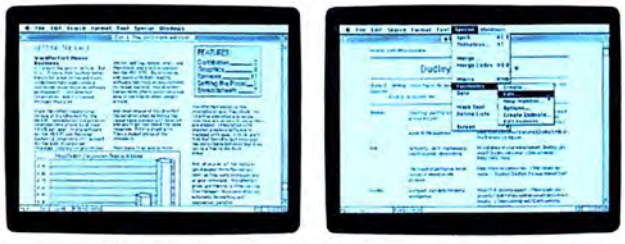
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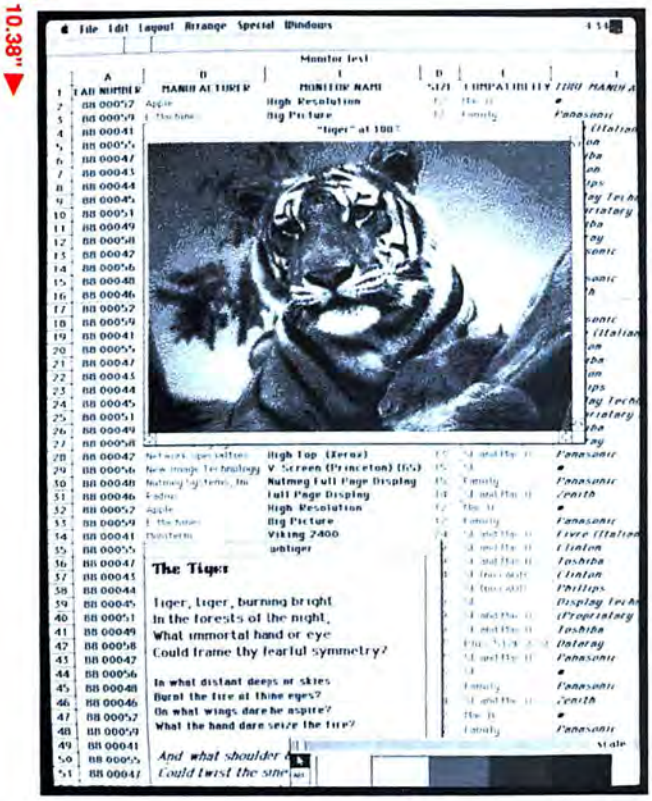




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Nutmeg Systems's Full Page Display
A 15-inch monitor with a resolution of 720 X 900

Software is included only for the SE. It operates from the Control Panel and offers you a rather basic choice of several possible screen configurations: one active screen; two identically active screens (the cursor shows up at the same time in both screens and the same image is displayed); or two independently active screens, with the cursor moving between them. There is also a zoom feature that lets you magnify the image by 2X or 4X on one of the screens. (The zoom factor can be changed without restarting the computer.)

If you're running the 2400 with a Mac II, programmed functions are located in firmware on the video card and the above-mentioned software features are not available. The manual is a brief 14 pages.

At $2595, the Viking 2400 was the largest and most expensive monitor we tested. It carries a 90-day warranty. If your application is CAD/CAM, this could be the monitor for you. But if you want a general-purpose monitor for a variety of applications, there are several 19-inch monitors (like the Radius and the SuperMac models) that we preferred.

Network Specialties High Top

The High Top monitor is identical in appearance to the Full Page Display marketed by Nutmeg. (Both monitors are manufactured by Xerox.) The difference between these two monitors is the video controller boards.

The monitor is strong on ergonomic features, including a tilt/swivel stand and an etched anti-glare screen, but weak on image quality. The screen has a noticeable vertical convex curvature. The brightness is rather dim, even at its highest setting. The whites are somewhat muted and grayish, and the blacks are charcoal colored rather than a deep black. It has a long-persistence phosphor that creates some ghosting when closing menus or when objects are moved around on the screen.

The High Top monitor's focus is a little fuzzy, and the 90-dpi resolution makes characters small and hard to read. The brightness and contrast controls are conveniently located below the lower front panel. There is no on/off switch and no on/off indicator light. The High Top retails for $1395 and has a 1-year warranty.

Nuvotech EasyView

The EasyView is a 14-inch monitor that provides a double-sized magnification of the Mac screen at the expense of resolution. The screen image is coarse and grainy.

This monitor requires no card installation. Instead, you unplug the multicolored cable that connects the analog board and the logic board inside the Mac, and replace this with the supplied video adaptor and power cord.

The monitor's screen has been etched to reduce glare. The phosphor color is quite warm and easy to look at, and the alphanumeric characters are large and easy to read (although they are also ragged and chunky, owing to the low resolution of only 56.9 dpi).

The monitor we tested had some linearity problems, demonstrated by the slight elongation of circle test patterns. There was also a slight convex bump (pincushioning) along the top center of the screen.

The monitor has a tan case and a darker tan bezel around the screen. There is an on/off switch on the rear panel and an on/off indicator light on the upper right front panel. Brightness and contrast controls are located on the right side of the monitor; there is no tilt/swivel stand.

At $395, the EasyView is the least expensive monitor we looked at, and it has a 2-year warranty. EasyView is worth considering if your main objective is simply to enlarge what's on the screen to make it easier to read.

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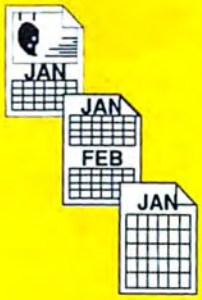
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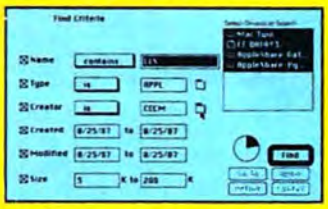


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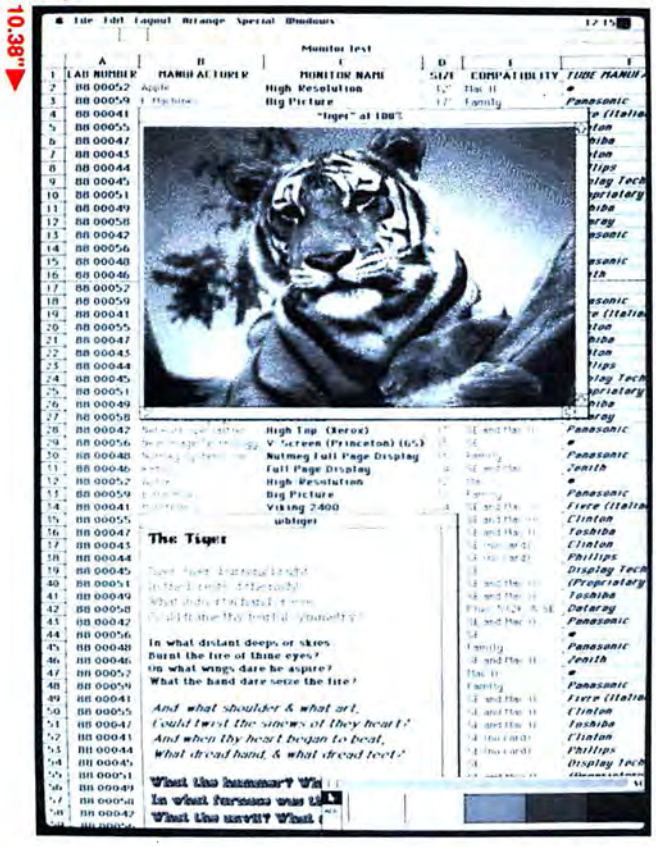


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Micro Display Systems's MacGenius
A 15-inch monitor with a resolution of 720 X 1008

PowerR MacLarger

MacLarger looks like a 12-inch Apple monochrome monitor, probably because it is an Apple IIGS monitor that has been modified to work on the Macintosh. This monitor requires no card installation — you just unplug the multicolored cable that connects the analog board and the logic board inside the SE chassis, and replace it with the supplied PowerR video adaptor and power cord.

This 12-inch screen for the SE provides some improvements over the normal 9-inch SE screen. The phosphor is the same bluish-white color as the Macintosh screen. However, the focus seems soft along the right-hand edge of the screen. The screen image is coarser and chunkier looking than on most of the other monitors. A silica coating has been used to reduce glare.

The on/off switch is easily reached on the right side, and there's a power indicator light on the right front panel. On the back of the monitor, there's a slot that can be used to lock the monitor down. The AC power cord is permanently attached to the monitor, and the video connection cable is a 3-foot long cord with a phono plug. Sitting right next to an SE, the monitor is too low for normal viewing; it could be elevated by adding a tilt/swivel stand (which is not included).

MacLarger has a 1-year warranty and retails for $449, about $50 more than the similar EasyView. Like EasyView, MacLarger offers a low-cost option for users who want a simple screen magnifier, rather than more functionality.

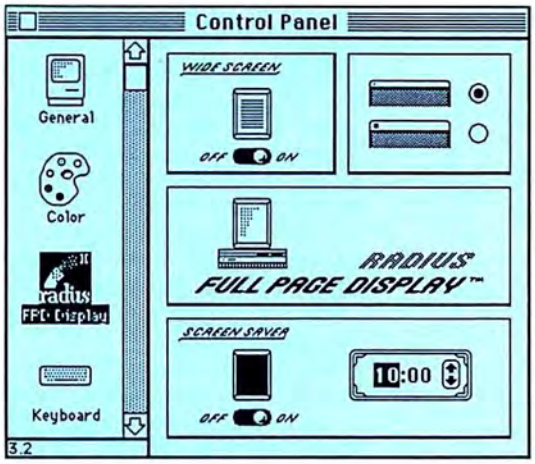
Radius Two Page Display

The Radius Two Page Display (TPD) is an uncluttered, nicely designed and finished monitor. The only design drawback we found is that all the controls (for brightness and contrast, and the on/off switch) are inconveniently located on the back of the monitor. This is especially annoying with such a large and cumbersome monitor; in a confined area (such as our Lab), the rear panel can be especially hard to reach. There's no tilt/swivel stand, so we had to move the entire monitor just to make a simple adjustment in the brightness. Adjusting brightness and contrast may be a frequent activity in rooms where the ambient lighting changes dramatically. There is no on/off indicator light on this monitor. The 6-foot coaxial connecting cable allows flexibility in setting up the system.

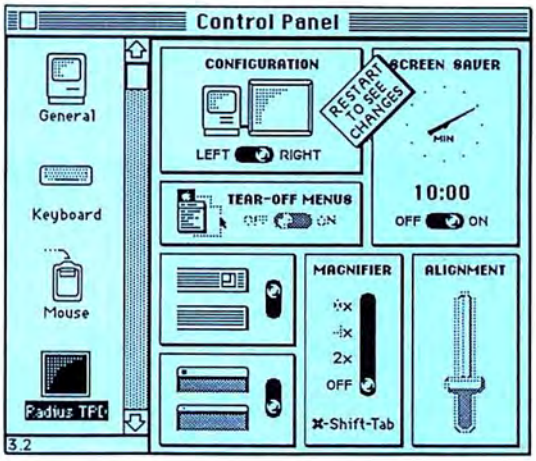
On the SE, the TPD requires a $695 monochrome board. On the Mac II, however, the TPD will not run as a monochrome monitor; it can be used only as a full gray-scale monitor (256 shades), requiring a $1895 video card.

The screen image is pleasing and stable, with no apparent flicker. The phosphor is a slightly cool shade of white, not as bluish as the standard Mac screen phosphor. The screen has not been treated for glare. The image is generally clean and crisp but, on the monitor we tested, there were some areas in the top middle portion of the screen where the focus was a bit fuzzy. There were also some linearity problems. When we displayed our test pattern, we observed some elongation toward the top of the screen and some constriction at the bottom. This factor is not immediately apparent, however, unless you're looking at a test pattern.

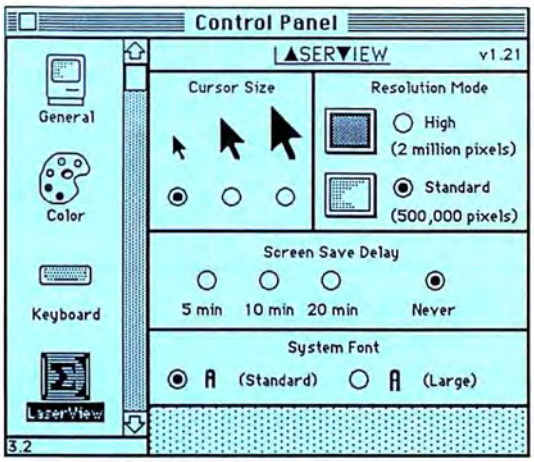
The software is accessed through the Control Panel and includes a screen-saver; a configuration switch that lets you select whether the TPD is to the right or the left of the Mac screen; a menu-bar size selector; an auto-zoom feature that lets you add a zoom box to windows in applications that do not already have them; a screen-alignment tool that lets you align the two screens when both are active; a tear-off menu option; and a screen magnifier that allows magnifica-



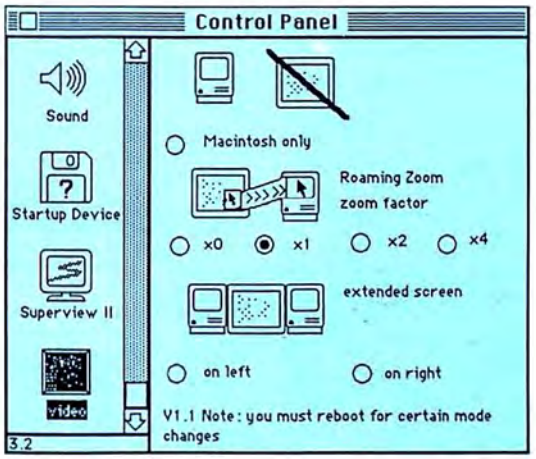
Radius Full Page Display



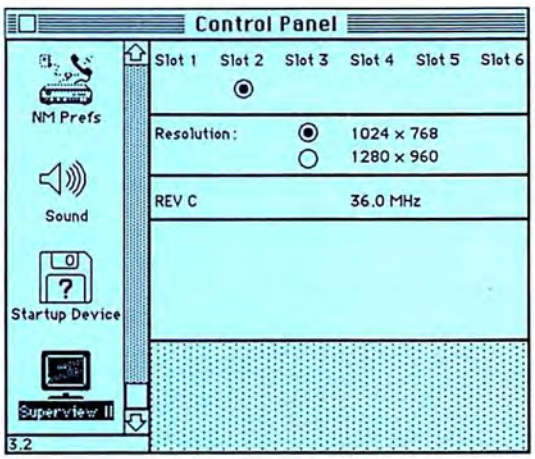
Radius Two Page Display



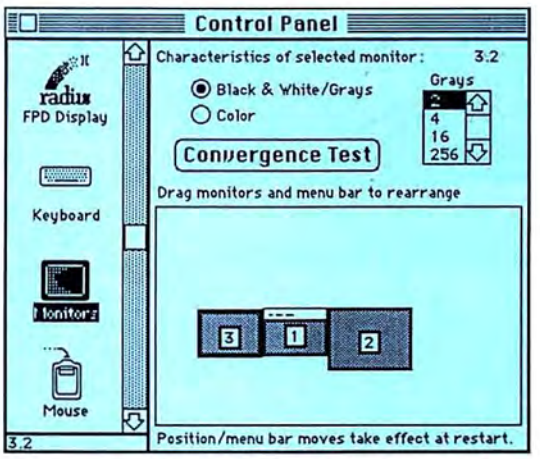
Sigma's LaserView



Moniterm's Viking 2400

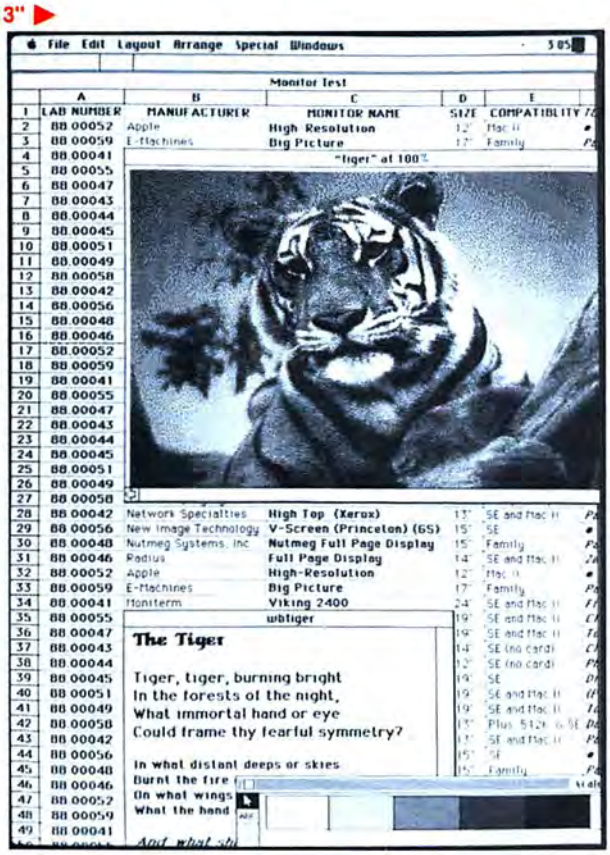


SuperMac's Monochrome Monitor



A control panel showing the relative configuration of three simultaneously active monitors.

8.13" ▶
11.25" ▼



tion of 2, 4, and 8 times the usual screen image.

Installation was not especially easy, but in most cases this shouldn't be a concern for anyone but the dealer. The instructions are clear and complete, and include step-by-step guidelines and illustrations. Helpful warning messages steer you away from potential hazards. Since the Radius video card is designed to accommodate an accelerator card as well, installing it involves some pretty tight fits and maneuvering.

The Radius Two Page Display retails for $1695 (not including the required video card) and carries a 90-day warranty. Radius plans to offer an optional tilt/swivel stand for an additional $125. The high quality look and performance of the Radius TPD make it one of our favorites.

Radius Full Page Display

The Radius Full Page Display has the same uncluttered design of its bigger brother. This monitor works with either the SE or the Mac II; different video cards are required for each. Its only obvious design drawback is that it has only two controls, an on/off switch and a brightness control, and both are located on the



Radius's Full Page Display
A 14-inch monitor with a resolution of 640 X 864

Tester's Choice

Before you can pick the monitor that's best for you, determine your application. For word processing and page layout, a full page display is ideal. We liked the Radius models best, with their clear, sharp, flicker-free picture and wealth of software features. (We did grumble about controls hidden on the back of the unit. Bring 'em up front, please.)

If money were no object, we would pick the Radius Two Page Display as the best all-around monitor. But you need an $1895 gray-scale card to run it on the Mac II. With the monitor itself setting you back $1695, you have a very pricey $3590 display. For desktop publishing, our second choice would be the SuperMac 19-inch display. This is another good all-around monitor and runs only $1990 on the II and the SE.

If your application involves CAD/CAM with fine lines and symbols, the E-Machines and Moniterm Viking monitors are the ones to look at first. They put the most information on the screen in a readable fashion. Although its focus wasn't always perfect, we liked the 24-inch Viking 2400 for CAD work. Its younger sibling, the Viking 1, boasts an optical coating that eliminates glare entirely, though it also shows off fingerprints nicely.

The Sigma LaserView is, in theory, a wonderful monitor but, for most practical applications, it misses the boat. If only it had a one-million pixel mode. Two million pixels make everything look too small, and 500,000 pixels make things look too big. Otherwise it has everything going for it, including a lovely warm phosphor and some neat software features.

If you just want to blow up your 9-inch display (in more ways than one), you can't go wrong with either MacLarger ($449) or EasyView ($395). The EasyView is cheaper and has a longer warranty but has more linearity problems. Both of these monitors give you a larger, but coarser, view of the desktop world.

Watch out for ghosting on the MacGenius, The Big Picture, and the Nutmeg Full Page Display (which also suffered from elliptical test circles and focus that blurred at the edges).

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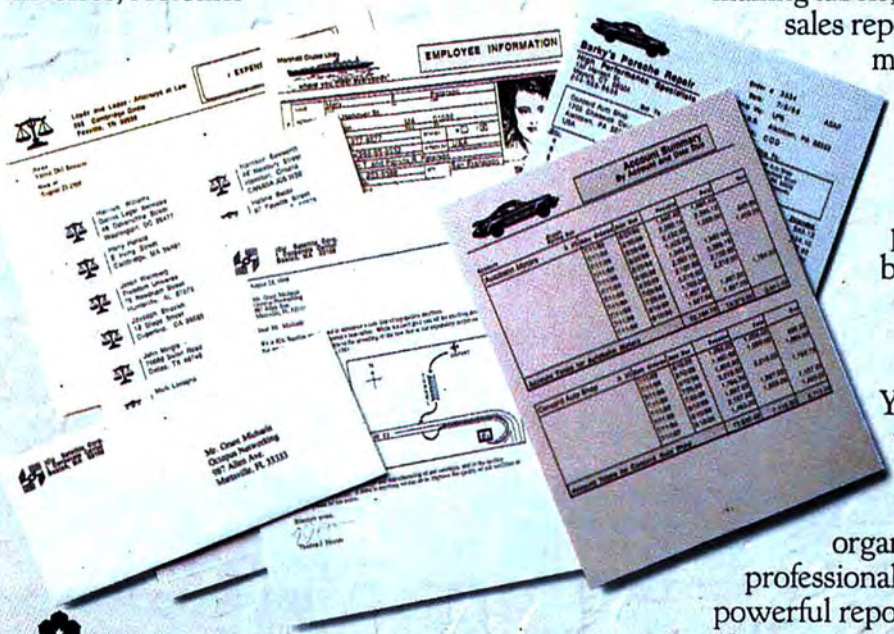
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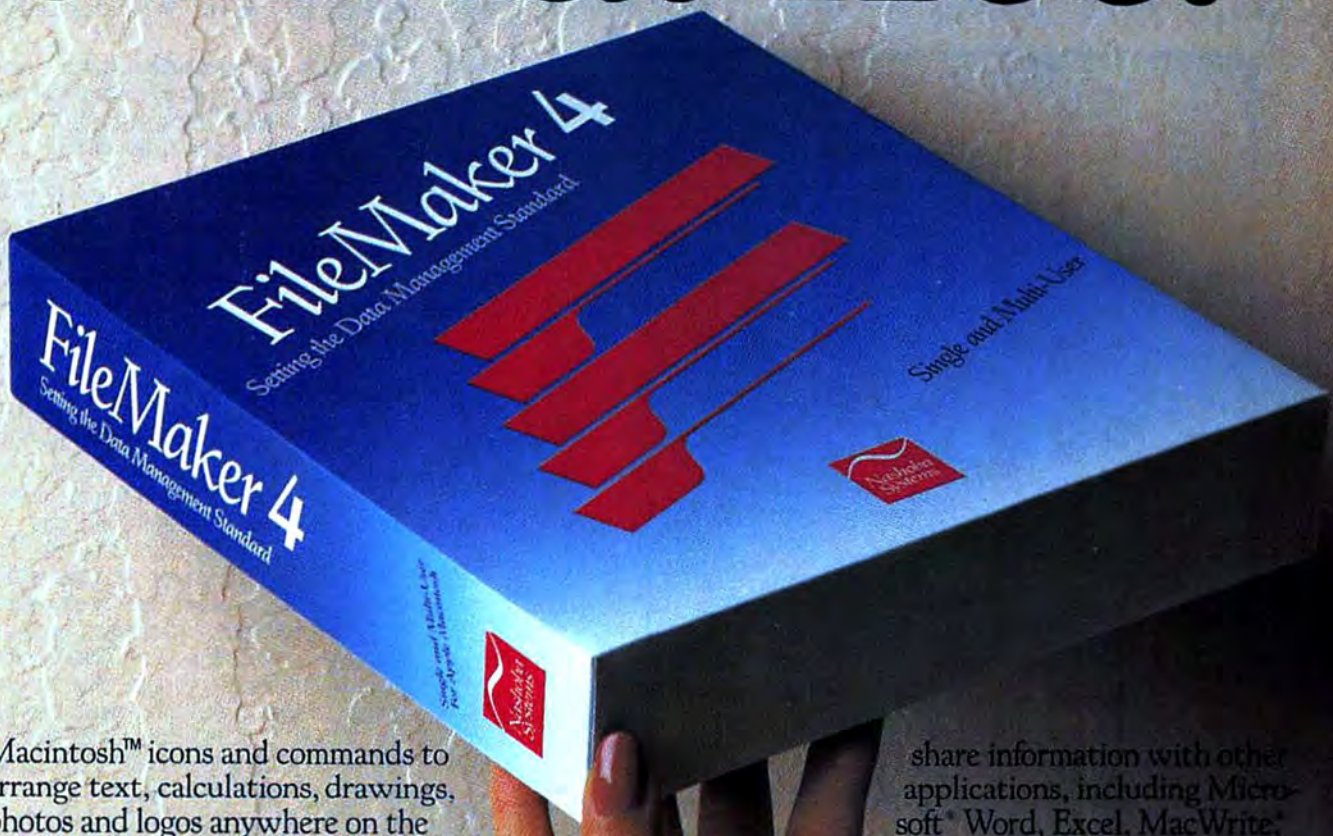
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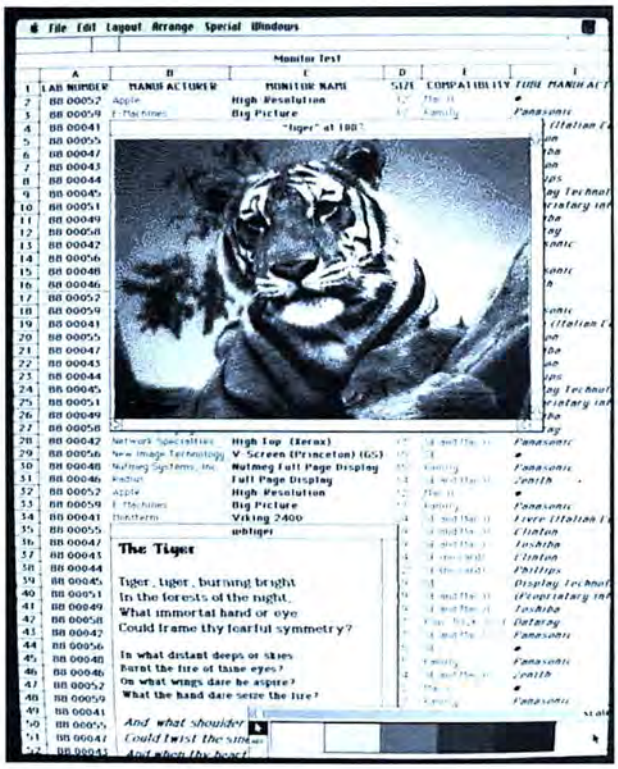
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◀ 10.38"





Network Specialties's High Top
A 15-inch monitor with a resolution of 720 X 900

back of the monitor, which makes them more difficult to reach. (This poses less of a problem with the FPD than it does with the TPD, since the FPD is smaller and the tilt/swivel stand makes the rear panel easier to reach.) There is no on/off indicator light.

The screen image is pleasing, stable, and flicker-free. The screen has not been treated for glare, and the image is clean and crisp. The phosphor is not as blue as the standard Mac screen phosphor. In fact, it's close to being a true shade of white, although it fell very slightly toward the blue-lavender part of the spectrum on our spectrum analysis.

The software has what Radius calls a Preference Panel (PP) instead of a Control Panel. The PP includes a screen-saver; a configuration selector that determines whether the Mac or the Radius screen or both are active; a screen placement feature that allows you to select whether the FPD is to the right or the left of the Mac screen; a screen-alignment tool that lets you align the two screens when both are active; a menu-bar size selector; an auto-zoom feature that lets you add a zoom box to windows in applications that do not already have them; a pointer-size selector to choose a regular or large pointer; and buttons for saving Preference Panel choices.

The clear and complete installation instructions include step-by-step guidelines and illustrations. Warning messages steer you away from potential hazards (to you or the computer).

The Radius FPD retails for $1690 with the SE board and for $1790 with the Mac II board. It comes with a 90-day warranty covering all electronics. Like the Radius TPD, this was one of our favorites; we recommend it highly.

Network Specialties Big Top

Big Top is a 19-inch monitor made by Ikegami that uses a CRT manufactured by Toshiba. It is essentially the same monitor as the SuperMac Monochrome monitor, bundled with a different video card.

Ergonomically, Big Top is nicely designed. The CRT screen is chemically etched to reduce glare. The on/off switch and the brightness and contrast controls are easy to operate and are conveniently located on the front right side of the monitor. It has a dark gray bezel framing the screen. This monitor comes with a tilt/swivel stand and has an on/off indicator light on the front panel.

The Big Top screen image is quite clear and crisp, but when we displayed a CAD/CAM drawing we observed some noticeable flicker, probably owing to the relatively low 60-Hz refresh rate. (SuperMac's refresh rate for this monitor is 66 Hz, which produces a more stable image.)

We tested Big Top on the Mac II only, although a clip-on card is available for the Plus and a bus card for the SE will be available soon. The monitor can be converted to a full gray-scale monitor by installing a different video card and making a minor jumper change inside the monitor.

Big Top retails for $1995 for the Mac II and $1895 for the SE. This monitor has a 1-year warranty.

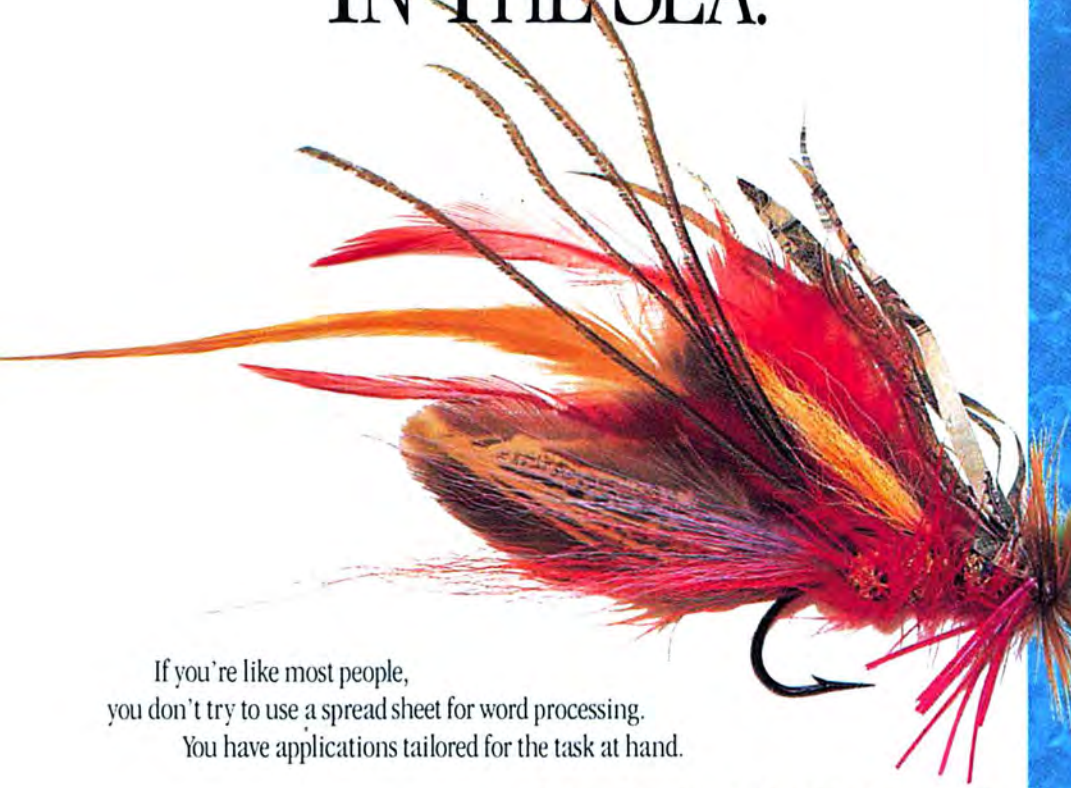
Nutmeg Full Page Display

The Nutmeg Full Page Display (FPD) is a 15-inch Xerox monitor with a tilt/swivel stand. It's identical in appearance to Network Specialties's High Top monitor; the video controller boards are different, though.

The contrast and brightness controls are conveniently located below the right front panel. There is no on/off switch; the power switch on the Macintosh controls the monitor. There is no on/off indicator light. The monitor case is light gray with a darker brownish-gray bezel framing the screen.

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Apple's High Resolution Monochrome Monitor

The monitor screen has been etched to reduce glare, and it has a more noticeable vertical convex curvature than the Radius FPD. The brightness level is much better on this monitor than on the High Top.

The phosphor is a slightly warm shade of white relative to the SE screen. The black shade is deep and true. However, the long-persistence phosphor creates some greenish ghosting when menu boxes are closed or objects are moved around on the screen. The Nutmeg FPD monitor's focus was generally a bit fuzzy, and the linearity was poor on the left side, both top and bottom.

The Nutmeg FPD retails for $1599 for the Plus and SE, $1799 for the Mac II, $300 to $400 more than the High Top version of the Xerox monitor and $100 more than the MacGenius FPD for the SE (which we prefer to either version of the Xerox monitor). It carries a 90-day warranty.

SuperMac Monochrome Monitor

The 19-inch SuperMac Monochrome monitor works with either the SE or the Mac II, using the appropriate SuperView video card. The Ikegami monitor is basically the same as the one used by Big Top (marketed by Network Specialties). The image quality is not the same, however.

The screen image on the SuperMac is clear, crisp, and stable with no obvious flicker. The higher refresh rate of 66 Hz produces a more stable image than the Big Top's 60-Hz refresh rate. Linearity and picture quality are very good. The etched screen minimizes glare.

The software package includes selectable resolution modes. Monitors are preset at the factory to work on one resolution or the other. When installing your monitor, you have to make the software selection for the resolution mode chosen at the time of purchase. Since the screen does not light up until the selection has been made, SuperMac has included a talking instruction program that literally talks you through this procedure. The control device software seems rather gratuitous, indicating only which board slot the video card occupies, the resolution mode, and the revision level of the software.

SuperMac ships the current version of the *System* and *Finder* with each monitor's card software, so there is no possibility of discovering that you do not have the correct versions.

SuperMac's 25-page manual is attractive and nicely laid out. Documentation is good with lots of helpful illustrations for setting up and operating the monitor. There is also a section on troubleshooting.

The retail price on the SuperMac Monochrome Monitor is $1990, a few hundred dollars less than a Radius TPD. We consider it a good contender with Radius, especially considering the lower price and the easier access to controls.

Sigma Designs LaserView Display Monitor

The LaserView Display Monitor is an attractive 19-inch monitor with a soft, pleasing, almost buff-colored phosphor that is very easy to look at. This custom-designed phosphor was one of the warmest shades of white that we saw in the monitors we tested and the LaserView deserves kudos for this feature.

The brightness and contrast control knobs are conveniently located on the right front lower panel. There is also a horizontal centering control on the rear panel. This monitor comes with a tilt/swivel stand and has an on/off indicator light on the front panel. The screen has not been treated for anti-glare.

The focus while running on the Mac II was clear and crisp with very black blacks and two shades of gray. However, the screen image wasn't quite as good on the SE, where there were some linearity problems and some areas of fuzziness.

The software allows you to choose between two resolution modes. The high-resolution mode of 1664 X 1200 is extremely high. The LaserView high-res mode had the highest resolution of all the large screens we viewed. The lower, or standard, 832 X 600 pixel resolution makes the pixels twice as large and looks like a double-sized, magnified image of the high-res mode.



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We felt that, although the resolution selection capability seems like a nice feature, the choices are a bit extreme. In high-resolution mode, characters are practically too small to read. With a CAD/CAM drawing on the screen, the lines were faint in high-res.

The software also offers a choice of three different cursor sizes and standard or large System fonts on menu bars. The LaserView software includes a screen blanker, which can be set to activate after a 5-, 10-, or 20-minute period of idleness. The software for the Mac II also allows selection between LaserViews if more than one monitor is connected. One software feature on the Mac II that we especially liked was the ability to make changes in the screen configuration without having to restart the computer as you have to do with all the other monitors.

On the SE, however, you have to restart to change anything other than the cursor size and the menu bar font. Software is installed as a desk accessory on the SE, rather than as part of the Control Panel, and you must load Sigma's replacement font for Chicago. You can have only one screen active at a time on the SE.

The 33-page manual is attractive and nicely laid out, with installation instructions accompanied by helpful illustrations.

The Sigma LaserView monitor itself retails for $1400. The card for the SE is $895 and for the Mac II, $995. All parts carry a 1-year warranty. This is quite a nice monitor; we recommend it for use with the Mac II if you need super-high resolution.

9.38" ▶
7" ▼



Nuvotech's Easyview
A 14-inch monitor with a resolution of 512 X 342



Apple High Resolution Monochrome Monitor

The Apple High Resolution monitor is a rather boxy shaped 12-inch landscape monitor. Its bluish-white phosphor is identical to the phosphor used on the Macintosh SE. Its screen has been treated with silica deposits to reduce glare. The image is slightly fuzzy and has just a bit more flicker than most of the other monitors we looked at, roughly equivalent to the minimal flicker of the SE screen.

The brightness and contrast controls are located on the right side. The on/off switch is on the rear panel and there is an on/off indicator light on the front panel. There is also a power-in and power-out connection on the rear panel. It does not come with a tilt/swivel stand.

The Apple High Resolution Monochrome monitor retails for $898 with card. It is a little bit larger than the 9-inch Mac screen; if you're happy with the Mac screen you'll probably like this grown-up version, but we felt it could use some bells and whistles.

Moniterm Viking 1

The Moniterm Viking 1 monitor case looks more finished than its big brother, the Viking 2400, but it is still a bit boxy. The phosphor is a slightly cool shade of white, a very true-looking white, less bluish than the Mac screen. The blacks are very black.

The brightness control and on/off switch are inconveniently located on the rear panel, and there is no on/off indicator light. There is no tilt/swivel stand, but a pedestal adjustment underneath the monitor toward the rear lets you adjust the tilt somewhat.

For $155 extra, Moniterm offers a version with an OCLI anti-glare coating. This type of anti-glare coating is quite effective at reducing glare without loss of image clarity, but it imposes an off-axis purple

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PowerR's MacLarger
A 12-inch monitor with a resolution of 512 X 342

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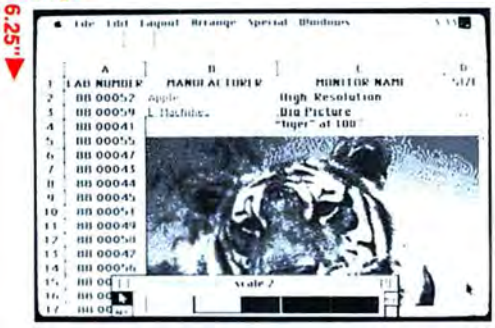
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Apple's Macintosh A 9-inch screen with a resolution of 512 X 342

tint on the screen and really shows fingerprints, so you would need to keep the screen squeaky clean.

The image wasn't completely clear on the monitor we tested, and the focus was a bit fuzzy. Linearity was good and there was no apparent flicker. Moniterm has left nearly 1 inch of black space around the edges of the image. This results in notably more unused screen space than most monitors and was presumably done to improve picture quality at the edges. The screen resolution of 1280 X 960 pixels (91 dpi) is extremely high, resulting in very small characters, which can be problematic depending on your application. (Moniterm has also introduced a 72-dpi version of this monitor that we weren't able to evaluate for this test.)

The screen can display a lot of data at once, but you might find it difficult to read the tiny letters and numbers. However, the CAD/CAM drawings we displayed looked quite good on the Viking 1.

The Viking 1 monitor retails for $1195, and video cards for the Mac II and SE are $800 each, making a total of $1995. (Add $155 if you want the OCLI anti-glare coating.)

Micro Display Systems MacGenius

The MacGenius is a full-page (15-inch) display monitor for the SE and Plus. The monitor case is nicely designed and finished and has an on/off indicator light on the front panel. The brightness and contrast controls and the on/off switch are located on the right side of the monitor. MacGenius comes with a tilt/swivel stand.

The phosphor is a very pleasant warm shade of white that is easy to look at. The resolution of 100 dpi is high, so the characters are rather small and can be difficult to read unless you are sitting directly in front of the monitor.

Micro Display offers a choice of etched anti-glare or untreated screens. The screen image is not very sharp on the

Great Late Arrival

This monochrome monitor arrived in the lab at the last minute, too late for any photos to be taken. Here's a brief description of the basics.

Taxan Crystal View II (& SE)

The Crystal View 19-inch monitor looks like a real contender. It's available for both the II and the SE, although the one we saw was hooked up to a II. It's a good-looking monitor with a tilt/swivel stand included, a resolution of 1152 X 864 (exactly the same as the Radius TPD), and a dpi of 82 (72 optional). The 82 dpi allows you to display two pages at a time, but if you'd prefer true 72 dpi WYSIWYG, that's available also as a chip option on the board. The refresh rate is 72 Hz and the video amplifier bandwidth is 98 MHz. The power consumption of 65 watts is notably lower than the other 19-inch monitors at 100 and 110 watts. The phosphor appears to be a true white, neither warm nor cool, and there is no ghosting at all. The sharp, crisp Crystal View screen image does live up to its name. There is no software for the Mac II monitor, but the SE version does include some software.

With a retail price of $1695 for both the II and SE versions, the Taxan Crystal View's only 19-inch competitor in that price range is Network Specialties' Big Top. The Crystal View, however, looks more like the much higher-priced Radius than a Big Top. The high refresh rate of 72 Hz, which is responsible for eliminating flicker on the screen, is matched only by the Radius TPD at a cost of $2395; quite a bit more than Crystal View. Also, Crystal View put the controls, on/off and brightness, where they're hidden but easy to reach on the lower right front side. In short, the Crystal View seems to offer the high image quality of Radius, lower power consumption, conveniently located controls, and a tilt/swivel stand, along with greater affordability. You'd do well to take a look at this Taxan monitor.

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MacUser LABS

etched screen; we'd recommend the untreated screen on this monitor.

The SE card was easy to install. You can run your SE screen simultaneously with MacGenius. However, when we ran both monitors together, we got a faint but noticeable horizontal line moving at a constant rhythm vertically through our SE screen. There's no software, other than a System Init. The manual consists of 17 pages of stapled 8.5 X 11-inch sheets. It includes installation instructions and several helpful illustrations.

MacGenius retails for $1495, $200 less than the Radius FPD. It has a 1-year warranty.

E-Machines The Big Picture

This high-resolution monitor has an attractive, nicely finished case, with the tube protrusion offset to the left side, that lets an SE fit partially behind it. It produces a clear image with minimal flicker. However, the focus was a bit fuzzy along the sides of the screen. The medium-persistence phosphor is a soft warm shade of white that is easier to look at than most. The blacks look very black, and gradations of gray are also excellent. The screen is not treated for anti-glare.

The case is a light buff color with a lighter beige bezel around the screen. There is no tilt/swivel stand or other kind of angle-adjustment mechanism. The brightness control is located in the front to the left directly below the logo. There is a power-in and power-out connection on the rear panel. The on/off switch is also on the rear panel, but there is no on/off indicator light on the front. This monitor suffered from green ghosting when moving the cursor and closing pull-down menus. Also, the 85-dpi resolution (with 1024 X 808 pixels) creates fairly small, hard-to-read characters. However, when we displayed a CAD/CAM drawing, the lines looked sharp and clear. This isn't a bad choice for CAD/CAM applications.

The manual is nicely laid out, with illustrations for setting up the monitor, using the software, and troubleshooting. At $1995, The Big Picture costs about the same as the SuperMac 19-inch and $400 less than the Radius Two Page Display.

Monochrome Monitor Directory

Apple Computer
High Resolution Monochrome Monitor
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010

E-Machines
The Big Picture
9305 SW Gemini Drive
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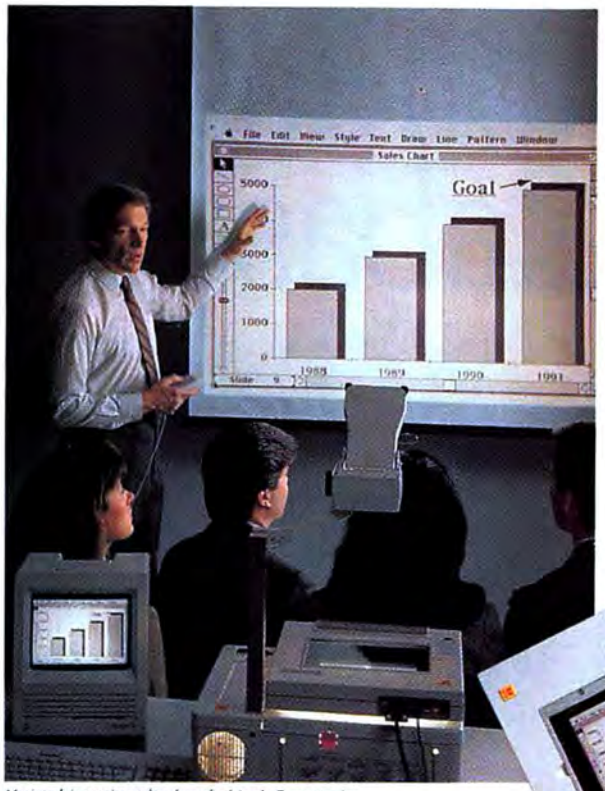
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Sigma Designs
LaserView
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Fremont, CA 94538
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SuperMac Technology
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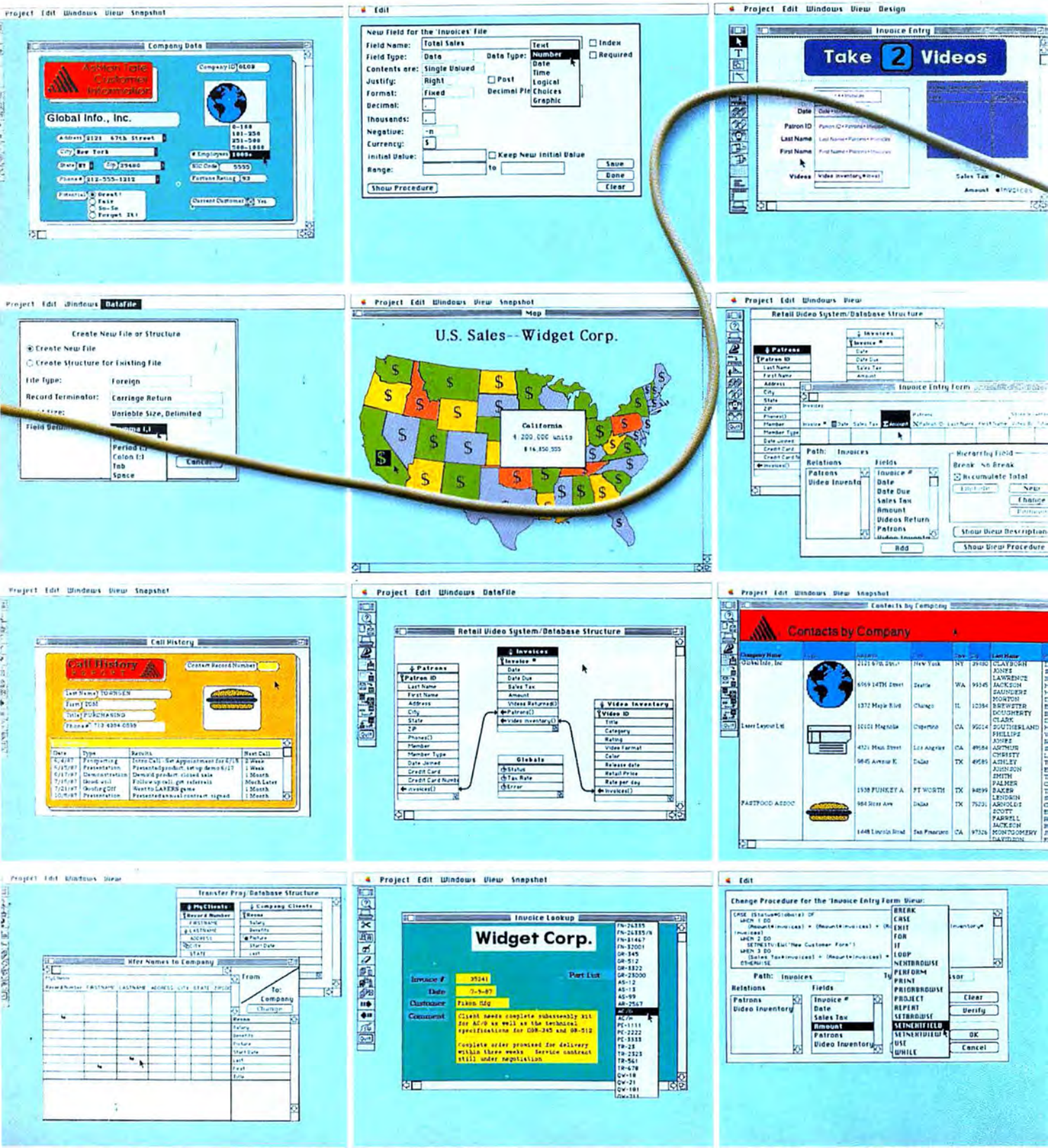
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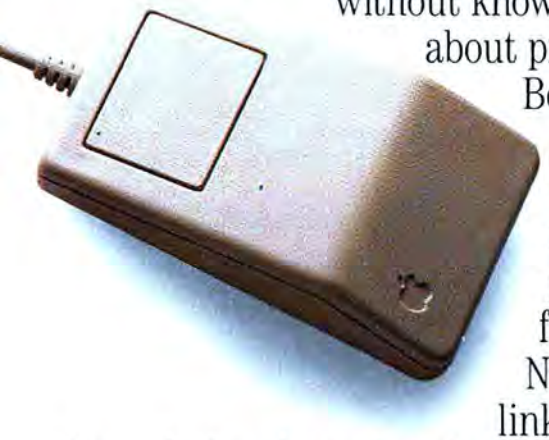


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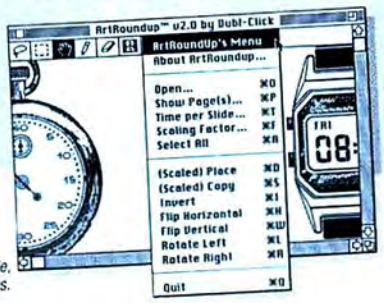
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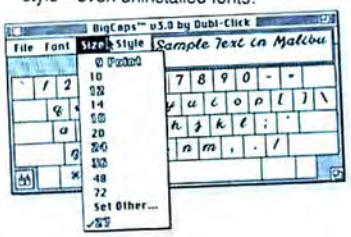
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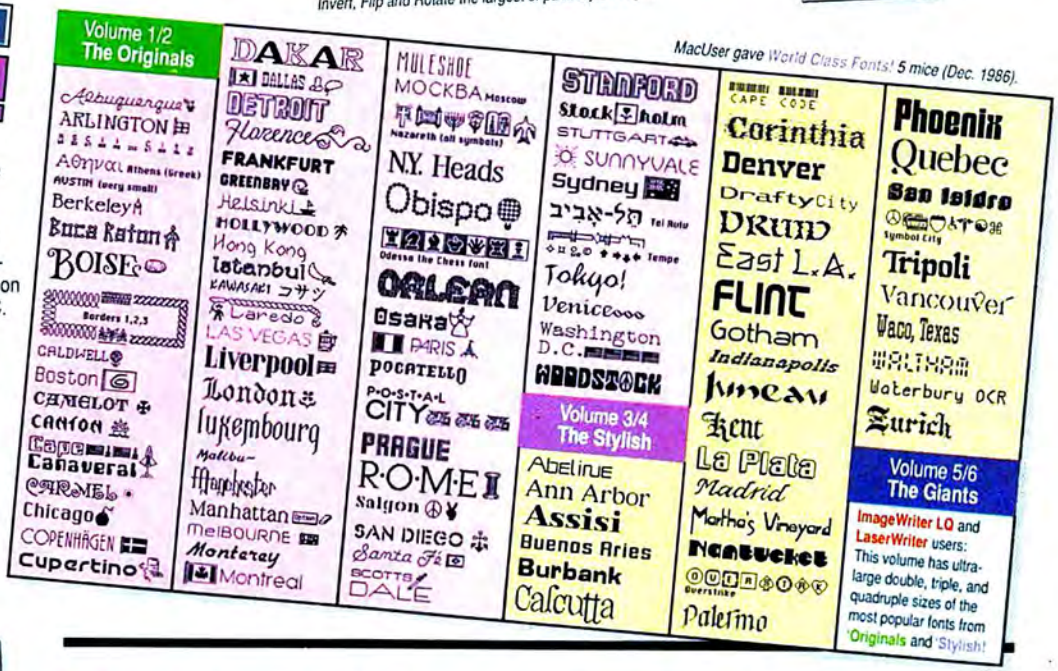
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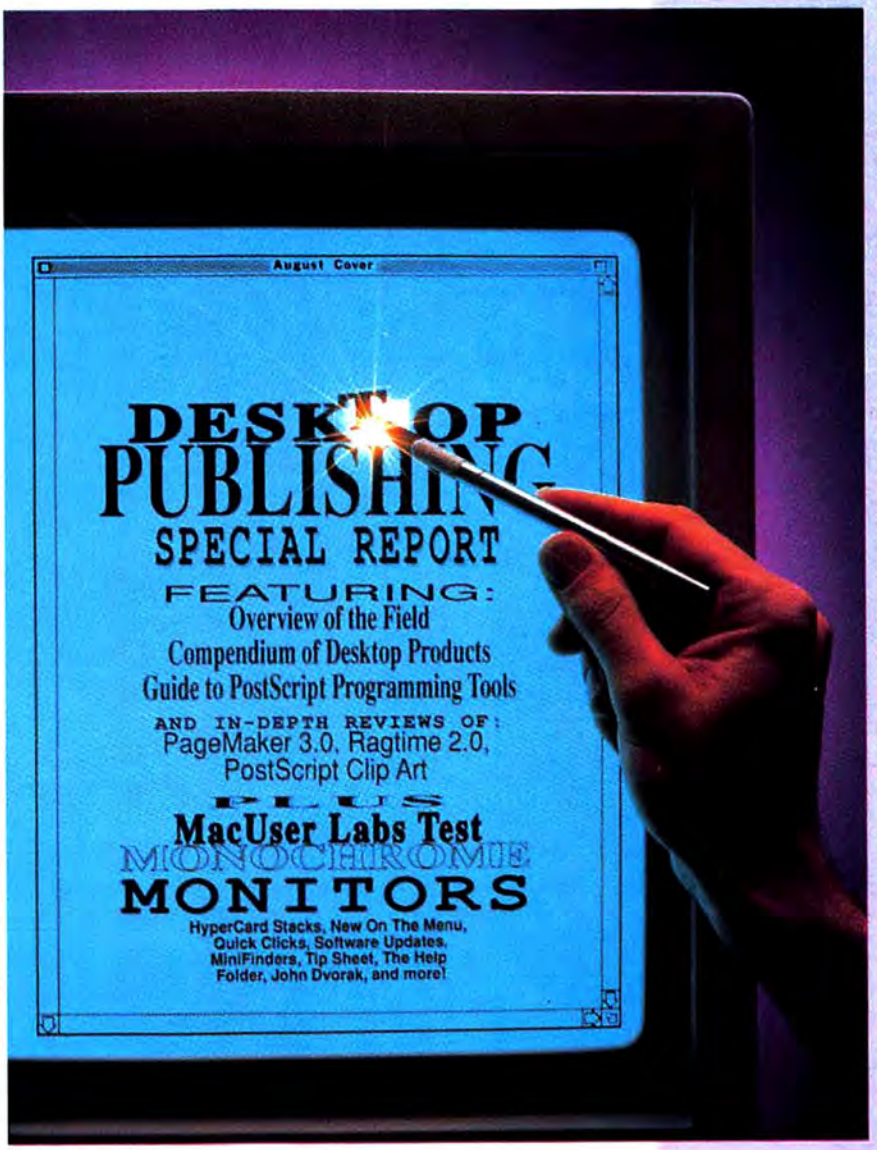
Assess your needs and do a little homework, and assembling your own DTP package won't kill you.

A couple of years ago, when the concept of "desktop publishing" was still a fresh idea, you could visit your favorite computer dealer and outfit yourself with appropriate software in less than an afternoon. Back then, there were so few products available that comparisons were easy to make. After a quick demonstration, you purchased the most appealing word processor, a page layout program, some sort of graphics package, and you were in business.

Today, however, life is decidedly less simple. Not only are there more and better products in every program category, but the borderlines between categories have blurred significantly. Word processors have sprouted page layout features; layout programs have incorporated word processing, and everybody can import, resize, and reposition graphics — even graphics programs. What all this means is that it's more important than ever to do some homework before you take the plunge.

Before you start shopping, look carefully at your habits, needs, and preferences. Putting a package together isn't simply a matter of buying programs with the largest number of features; you have to make sure that those features are useful.

This process of self-evaluation is called a *needs analysis,* and anyone can do it. The basic trick is to break down your requirements into small tasks and then match those tasks to software capabilities. If a program



MEL LINDSTROM

BY EZRA SHAPIRO

seems to fit and you can justify its cost, you've made your selection. By examining the particulars in this way, you avoid the nightmare of being seduced into purchasing a program that looks spectacular but never seems to blend into your working environment.

WHY FOUR CATEGORIES?

To help you picture your needs better, here are four hypothetical projects that cover a wide spectrum of desktop publishing tasks.

A generic business report is a document that runs several pages, uses a repeating format, and requires limited graphics — maybe a pie chart or a handful of pictures. It's a word-processing project because it calls for headers and footers but not much diversity of type. No fancy design is needed.

A book or manual represents a long document much like the business report, but precision control of the repeating format is much more critical. Changing the layout of a report is easy, but something as trivial as changing page numbers can be a big deal when you multiply the effort involved by the number of pages in a full-length book.

A three-column newsletter is another short document, but it demands much more sophistication in design. You'll probably make extensive use of bigger, more expressive headlines, graphics, white space, and design touches. A newsletter can get very elaborate, so your needs could range widely.

Advertising design is really a catch-all label for all your one-shot special projects. This includes business cards, stationery, and wall posters as well as traditional magazine or newspaper advertising. In any of these examples, though, emphasis is on a strong image presented through effective design. You'll need a powerful arsenal for maximum flexibility.

THE FEATURES ARE WHERE YOU FIND THEM

Because software packages have begun sharing features, it's important to know what features you're looking for and where you're likely to find them.

Word processing, for example, implies a bit more control than merely typing and editing. It assumes the abil-

Because software packages have begun sharing features, it's important to know what features you're looking for and where you're likely to find them.

"I need more stuff — or do I?"

OK, so you've figured out what you need, but you don't know what's out there. No problem. Here are some suggestions.

For convenience, we've divided the range of desktop publishing needs into three broad categories: Basic, Intermediate, and Advanced. (Pretty original, huh?) Your particular situation will probably require a combination of these categories, but this should help you get started.

- **BASIC**

This includes short reports, simple fliers and newsletters, and the like. These basic desktop publishing projects involve word processing with an occasional graphic thrown in for visual interest. Page layout and typography aren't particularly important.

Word Processors:

MacWrite 5.0 (Claris; reviewed June '88)
Write (Microsoft; reviewed May '88)
WriteNow (T/Maker; reviewed March '87).

All of these word processors can import graphics, and the latter two also have some limited page layout features.

- **INTERMEDIATE**

This is an extremely broad category that covers anything from long reports and books to sophisticated newsletters, ads, and proposals. In addition to word processing, you'll need a page layout program, some form of graphics package (either Draw or Paint, or both), and probably some clip art. Hardware also becomes important at this stage, so you'd do well to investigate a two-page display, as well as an accelerator card to speed things up if you're not working on a Mac II. A scanner (color, gray scale, or monochrome) for reading in photographs and other artwork might also prove useful.

Word Processors:

FullWrite Professional (Ashton-Tate)
Word 3.01 (Microsoft; reviewed March '88)
WordPerfect (WordPerfect).

Page Layout:

PageMaker 3.0 (Aldus; reviewed in this issue)
XPress (Quark; reviewed September '87)
Ragtime 2.0 (Orange Micro; reviewed in this issue)
Ready, Set, Go! 4.0a (Letraset; reviewed February '88).

Graphics:

Canvas (Deneba; reviewed January '88)

ity to set margins and spacing, add headers and footers, and perform search-and-replace operations on text. Many packages with word processing features include spell checking; the dictionaries used for this purpose also serve as the basis for automatic hyphenation. Those programs that claim automatic hyphenation but lack spell checking are using algorithmic hyphenation, which is demonstrably less precise. The one exception to this rule is *PageMaker,* which offers dictionary-based hyphenation but no spell checking.

Many word processing programs on the edge of desktop publishing have ways to perform column math; integrated products usually have spreadsheet modules. Drawing and painting tools are not usually considered to be requirements of "pure" desktop publishing software, but you'd better plan to have a graphics program somewhere in your software stash.

The more things you can do with type, the better. The more design-conscious your project, the more you'll need type manipulation.

If you need multiple columns, there are several ways to get them. Those programs that use a column metaphor let you set up guidelines for columns and then flow your text into them. Programs that use a frame metaphor require you to draw blocks for text on screen before entering text. Word processing programs, in which you enter text as a continuous flow, conform to neither metaphor.

Any good desktop publishing program lets you design master pages, which are the Macintosh equivalent of preprinted layout boards. You'll be able to develop a universal layout grid and position unvarying elements on both left- and right-hand pages.

The concept of the scrap area is another direct steal from the old world of page layout on the drawing board. It gives you a way to hold blocks of text or graphic images off to the side of your layout until you need them. A scrap area that's right there in your desktop publishing package can really speed you up. It beats opening and closing the Scrapbook repeatedly, and it beats setting up a blank page as a holding area.

A snap grid solves the problem of aligning objects, particularly on a small screen, by permitting you to position objects only on the gridlines. A non-square grid gives you the option of having columns on a page that are not all of the same width (or multiples of the same width).

Two features, style sheets and search-and-replace on format, are closely related in effect but quite different in operation. A style sheet that specifies type attributes, spacing, and position gives you a shortcut way either to set up your document or to change things to achieve a new look. If you want to make all your italic subheads boldface instead, you merely edit the appropriate style sheet and modify the specs. If you search on a format, you can make broader modifications, like changing everything that appears in Helvetica Bold to Times Roman Italic.

Import/export capabilities are becoming more essential and more demanding. Not only should your desktop publishing package be able to pull in text from outside and dump it back out in its original file format with any changes that have been made, but it should also be capable of dealing with the ever-increasing number of graphic formats. At the very least, a good program should be able to digest artwork from painting programs (Paint), drawing programs (PICT), newer drawing programs that produce PostScript code as well as a bit-mapped

Cricket Draw (Cricket; reviewed May '87)
"Draw it again, Sam" (Aba)
FreeHand (Aldus; reviewed in this issue)
FullPaint (Ashton-Tate; reviewed June '86)
Illustrator 88 (Adobe)
MacDraw 2.0 (Claris; reviewed November '85)
MacPaint 2.0 (Claris; reviewed July '88)
SuperPaint (Silicon Beach; reviewed February '87).

Clip art packages are too numerous and varied to mention, but you might want to investigate some of those reviewed in Sharon Aker's roundup of EPS collections in this issue.

Naturally, you could use any of the word processors listed in the Basic category, although they won't be as powerful as those listed here. One caveat: At this writing, *FullWrite* documents are not compatible with *PageMaker.*

- **ADVANCED**

This is the big leagues, folks. Now we're talking about annual reports, advertising, magazines, posters, and so on. At this level of expertise, you should already have a pretty good idea of what you need, and you're probably looking for some fairly specialized applications (such as color graphics, font editing, image enhancement, and PostScript generation) that'll cover any gaps left by your intermediate-level programs.

Color Graphics:
Modern Artist (Computer Friends)
PixelPaint (SuperMac Software; reviewed May '88).

Font Editing & Creation:
Fontastic Plus (Altsys)
Fontographer (Altsys).

Image Enhancement:
Digital Darkroom (Silicon Beach)
Image Studio (Letraset; reviewed June '88).

For a discussion of PostScript tools, see Gregory Wasson's article in this issue.

There are also many desk accessories that are useful in DTP regardless of your level of sophistication, but they are especially helpful for complex jobs. Carlos Martinez takes a look at some of these goodies elsewhere in this issue.

No matter how complicated your current DTP work may be, you'll eventually outgrow your present setup, so if you find yourself saying, "Help, I need more stuff!," don't panic. It comes with the territory. — *Russell Ito*

Depending on the simplicity of your projects, you might also be able to get by with programs not considered to be desktop publishing software.

screen image (EPS), and optical scanners (TIFF). The capability to enter raw PostScript as ASCII text can also be helpful for the hard-core DTPer.

The features discussed here are only examples, and there are probably many others that you'll need. Given this, study your situation carefully when you develop your own needs analysis.

SHOPPING THE MARKET

Once you've determined what you need, you still need to know what programs are available. To help you prepare your shopping list, here's a brief rundown of some of the most significant packages in DTP. This is not a comprehensive list, but it should provide a decent starting point.

Microsoft Word 3.0X is considered a word processor, but many of its features are reminiscent of page layout programs. It's certainly possible to use it to produce a simple multicolumn newsletter with graphics, columnar math, and embedded PostScript code, and it's the only one of the newer high-end word processors that was actually shipping when this article was prepared. Both *WordPerfect* and *FullWrite Professional* boast extensive feature lists that will be worth checking out when the products appear in the stores.

There is also no reason to ignore simpler word processors like *MacWrite* 5.0, *WriteNow,* and *Microsoft Works*. All of these allow you to prepare text for eventual use in page layout programs, and they're faster and easier to learn than the big guys. *WriteNow* even allows you to specify exact leading (line spacing) in points, so you don't have to worry about adjusting it after it's imported elsewhere.

PageMaker 3.0 (reviewed in this issue) is still the leader in the page layout category, but it does have some quirks. It's the only major page layout program that steadfastly refuses to incorporate a full-blown word processor; you'll be better off preparing your text with another package. It's also the only one to use a pure column metaphor; no frame drawing is needed. On the other hand, *PageMaker* pioneered the concept of the scrap area, and its recent adoption of style sheets at last makes it suitable for long documents.

Quark *XPress* adds an excellent word processor, spell checking, and so on, but it uses a strange mixture of column and frame metaphors: You work with frames, but you can create a frame with columns.

Ready, Set, Go! 4.0 also includes word processing and spell checking. It's frame-oriented and will allow only square grids.

Ragtime 2.0 (also reviewed in this issue) feels much like *RSG,* but it lacks the dictionary features. The algorithmic hyphenation, though, lets you specify your choice of language. *Ragtime* also includes a creditable spreadsheet. It's the only page layout/word processor combination to do so. *Trapeze,* though it incorporates some text-handling functions, is essentially still a spreadsheet, as are the unreleased *Wingz* and the new version of Microsoft *Excel.* So *Ragtime* stands alone at present as the layout tool for number crunchers. Oddly, *Ragtime* has no facilities for graphs and charts; if you want business graphics, you'll have to import them.

Scoop, from Target Software, has as its unique feature a built-in, bit-mapped graphics program, a little internal *MacPaint* of sorts. There is no capability for generating artwork at laser resolutions, so *Scoop* is acceptable only if you're primarily printing with a dot-matrix printer like the ImageWriter. *Scoop* is not a low-cost solution, however. The page layout features are all straightforward.

GraphicWorks 1.1 is an example of a graphics program with significant layout abilities. It's the descendant of a package called *ComicWorks,* which was intended for the production of comic strips. As a result, *GraphicWorks* has good page layout features and some minimal text handling. Although you can debate the merits of *GraphicWorks, SuperPaint,* and *Canvas* as graphics programs without determining a clear winner overall, *GraphicWorks* is more layout-conscious than the other two.

ALTERNATIVE APPROACHES

Depending on the simplicity of your

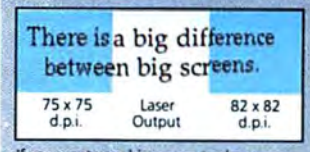
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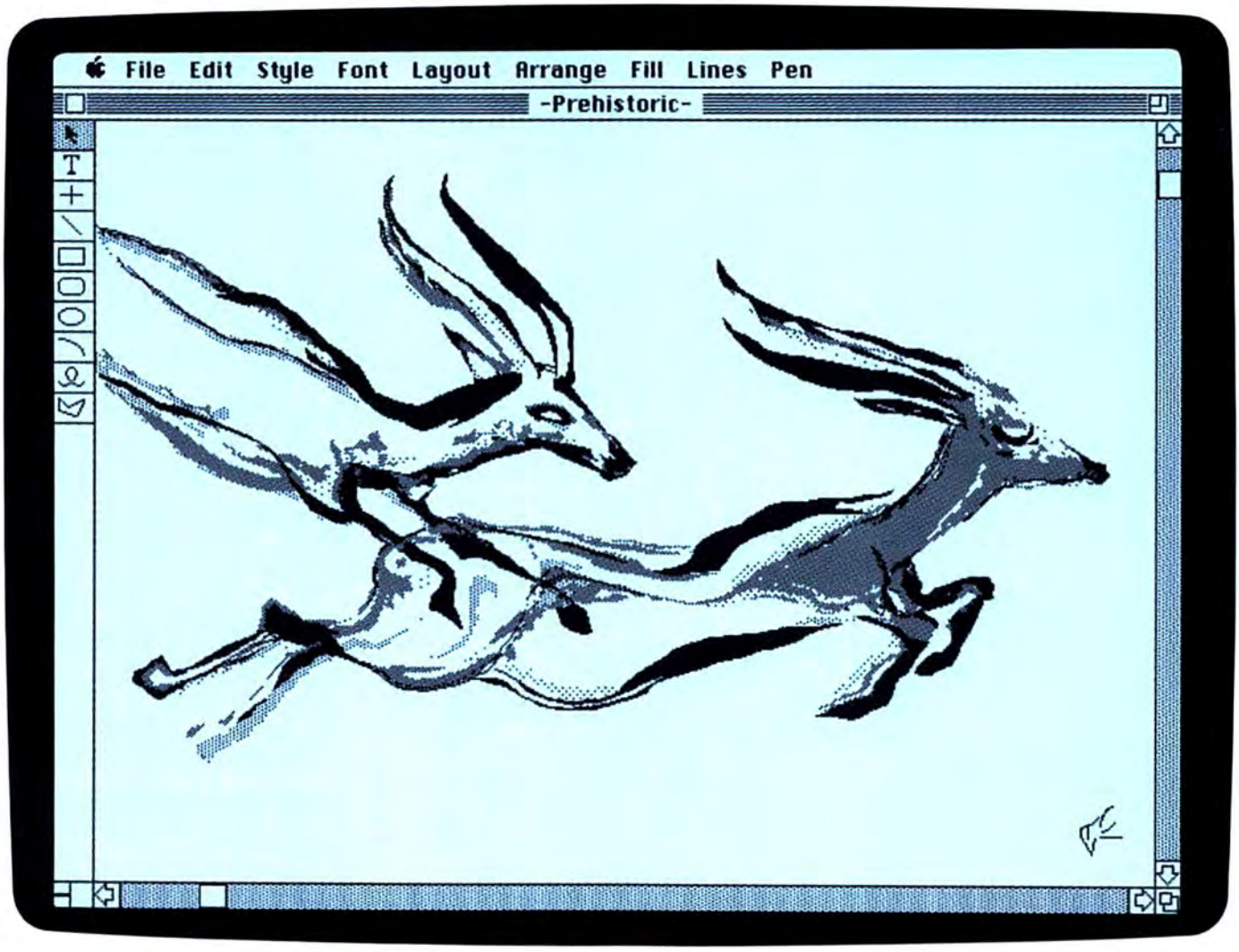
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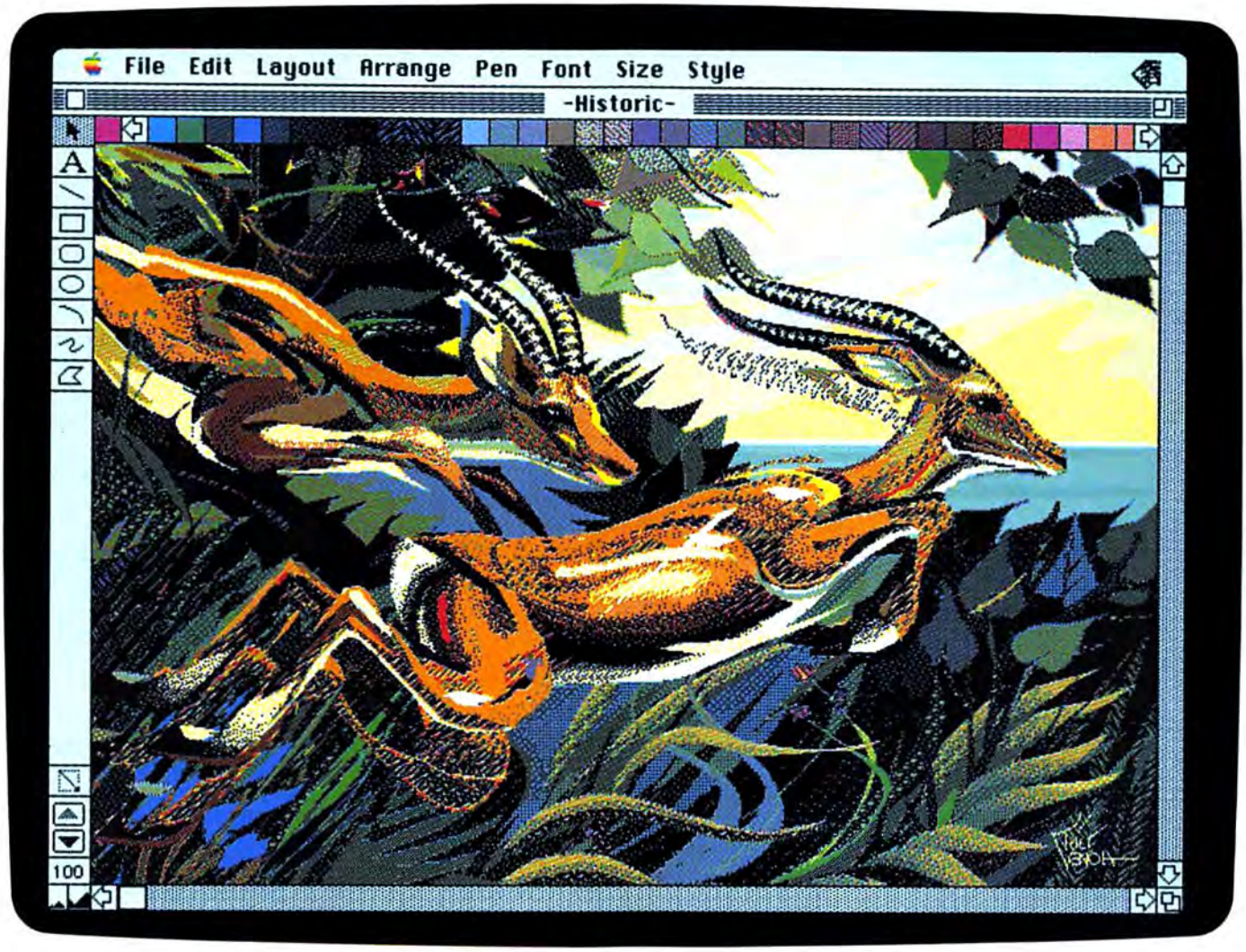


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projects, you might also be able to get by with programs not considered to be desktop publishing software. The two major integrated packages spring to mind: *Microsoft Works* and *Modern Jazz* from Lotus. Due to the highly integrated nature of both products, you can get a lot done without messing with graphics and layout packages. Some people can also get by quite nicely with either *Trapeze* or the yet-to-be-shipped *Wingz*. It all depends on what you need to do.

If your needs run toward the heavily artistic and/or professional design end of the scale, you ought to investigate some of the PostScript programs. This assortment includes *Fontographer*, the best type design package on the market and a perfect tool either for creating laser (and bit-mapped) fonts or for designing company logos. Stylized images are also possible with three top-level design tools: *Freehand* from Aldus, Adobe's *Illustrator 88*, and Cricket's *Cricket Draw*. All of them allow you to manipulate the Bezier curves that are central to PostScript. The resulting artwork will print cleanly and quickly on your laser printer.

This year also marks the dawn of the scanned-image enhancement product. *Image Studio* from Letraset and *Digital Darkroom* from Silicon Beach are excellent packages that let you take scanned files and manipulate the pictures for far better printed output. This is a rather specific little niche in desktop publishing, but if you intend to reproduce photographs directly on a laser printer, you ought to look into this. (*PageMaker* 3.0 has incorporated a less sophisticated version of this capability, and the new version of Quark *XPress* promises to do the same.)

PUTTING IT ALL TOGETHER

No generalized sketch of needs analysis, or of the entire desktop publishing field, can hope to make decisions on software purchases for you. But the process is simple, and you can get a good grasp of what you need in a couple of hours at most.

Preparation is important, but it isn't everything, so always be sure to try out — or at least get a thorough demonstration of — any software before you purchase it.

Many times, the difference between products can't be determined by comparing checklists of features. If you take the time to assess your needs carefully and to explore the market thoroughly, you should be able to assemble a DTP package that's ideal for your situation — without killing yourself in the process.

EZRA SHAPIRO IS A FALLEN ART DIRECTOR AND PUBLICATION DESIGNER WHO NOW WRITES ABOUT COMPUTERS AND EDITS A NEWSLETTER CALLED TECHNOLOGY & ADVERTISING.

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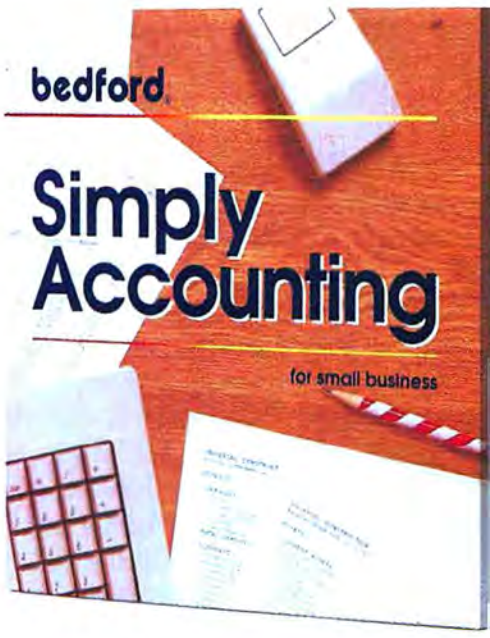
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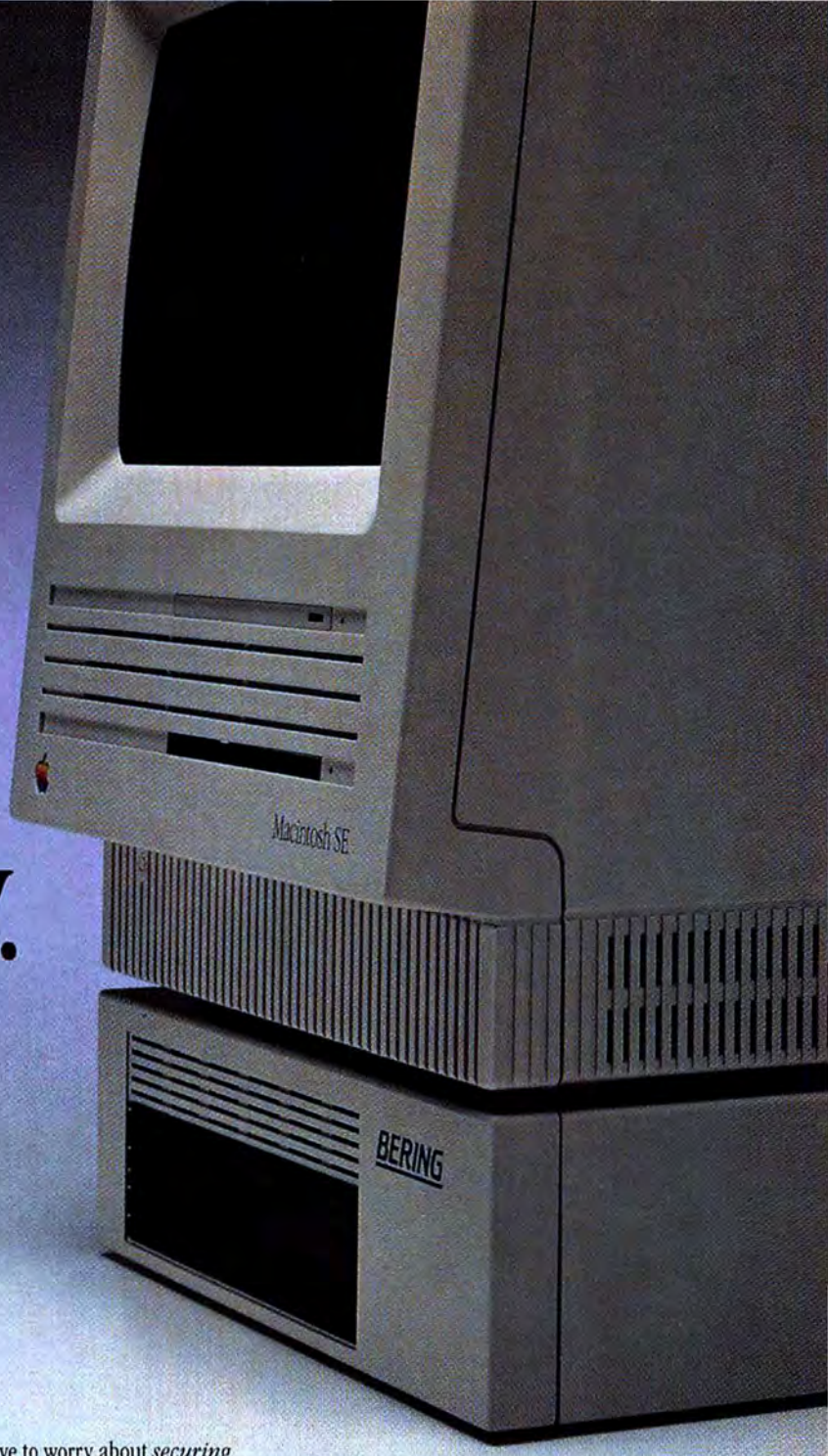
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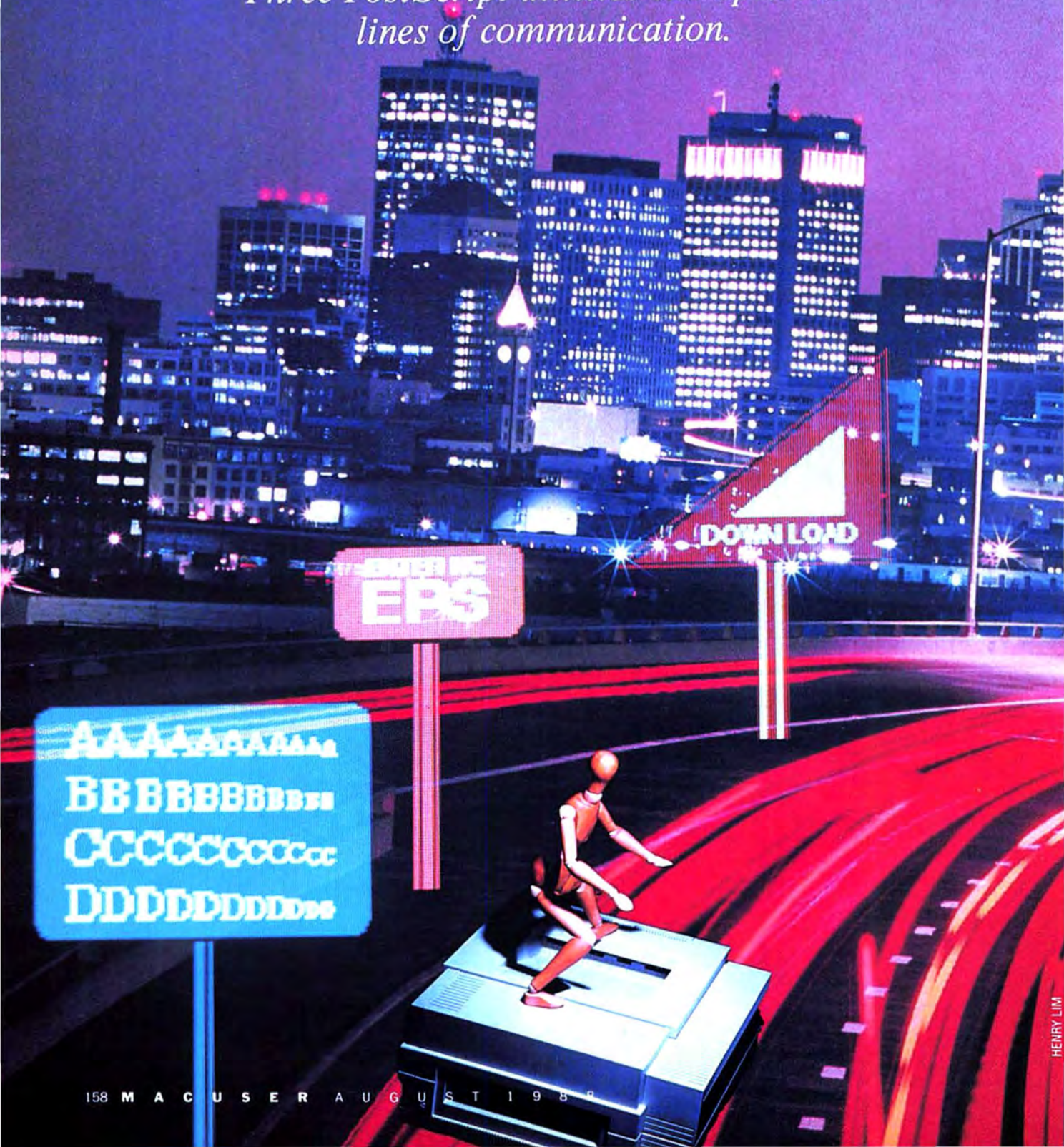
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If you want your printer to listen to you, you've got to speak its language. Three PostScript utilities can open the lines of communication.



HENRY LIM

DESKTOP PUBLISHING

PostScript Programming Made Easy

The prospect of PostScript programming strikes fear into the hearts of many otherwise bold mortals. It needn't be so. Three PostScript utilities are available that help make life in PostScript a little — or even a lot — easier.

PostScript is the page-description language from Adobe Systems that is used by most Mac-compatible laser printers and some typesetting machines. If you print on a laser printer, you've probably been generating PostScript code, although you might not know it. PostScript code is usually generated invisibly, from the user's point



BY GREGORY WASSON



When a PostScript printer sees PostScript code, it knows you don't want it to print the code — you want it to do the code.

of view. Many applications have been giving users more and more direct access to the graphic and typographic capabilities of PostScript, though — for example, by incorporating canned routines for such effects as placing text along a path. A few applications consisting solely of PostScript special effects are also available (see the article "Well, Isn't That Special?" in the January '88 issue).

You can go beyond canned routines if you take the time to learn the language. All you need to do is key in a PostScript program as a text file and download the file to a PostScript printer (using, for example, the font downloader that came with the printer). When a PostScript printer sees PostScript code, it knows you don't want it to *print* the code — you want it to *do* the code. That is, you want the printer to produce the effect described by the code.

For experimental messing around, this approach suffices, and until recently, serious PostScript programmers had few resources available in the way of development and debugging aids. (Indeed, *JustText*, the only application that provided both an editor and a downloader in the same application, wasn't primarily intended as a programming environment.) Now that PostScript has settled into the mainstream, however, three programming utilities have appeared.

BEGIN POSTHASTE

The first of these applications, *PostHaste*, began shipping in April 1987. Although the program suffers somewhat in comparison with *Postility* and *Lasertalk*, two more recent PostScript programming tools, *PostHaste* is a dependable, bare-bones alternative, especially for those on a tight budget.

The program comes on one 400K disk, along with several examples and extensive "cookbook" files from Adobe's famed "Blue Book" and a DA called *PrintStat* that does just what its name implies — tells you the current status of your printer — which is nice if you're working on a network and don't want to wade through print dialog boxes only to find yourself trapped in a queue. The DA, though great for use with other programs, is totally unnecessary for *PostHaste* because the program itself has a similar LASER STATUS feature under the Special menu.

Double-clicking on the program's icon straight out of the shrink-wrap brings up the registration screen (this happens only once). After you've entered your name and company, an untitled Document window opens.

In terms of bells and whistles — well, I'm not talking Big Ben or air-raid sirens here. You type in your program or import a text-only file from another application. Tabbing (to improve the appearance or format style of the code) is preset to every four spaces and you cannot alter it, and auto-indenting is not available. You cannot change the screen font (Monaco), but you can select a point size ranging from 7 to 24 points. Programs printed out (rather than downloaded to the PostScript interpreter) appear in Courier.

The Document window is resizable



One of *PostHaste*'s best features is the ability to select just a portion of code and download it to the printer. Here, two lines of a larger file have been sent to the LaserWriter. The Laser Messages feedback window catches the printer's response.

and has zoom boxes. Text is scroll-selectable. One surprise crops up when you drag the vertical scroll box on the right-hand side of the window. A small box pops up just below the title bar, giving you the file size and line number of the document. This feature is not mentioned in the manual but could prove useful to anyone who actually numbers the lines of their PostScript programs and needs to locate a particular line of code. Releasing the scroll box when it reads, say, "Line #11," brings that line to the top of the screen.

The File menu allows you the usual options (NEW, OPEN, SAVE, and so on). You can also PRINT TEXT, which outputs hard copy of your code (rather than executing it). If more than one document is open (up to four can share the screen), the NO NEXT WINDOW command changes to EDIT <document name>, which lets you move easily from window to window — handy if your work habits aren't all that tidy — and your windows overlap.

In addition to choosing UPLOAD or SAVE & UPLOAD from the File menu when you want to run a program, *PostHaste* has a simple, nifty way to upload portions of code to the PostScript interpreter and capture feedback. Just select the code in the Document window and press the Enter (not Return) key. The example in the manual shows how to use this technique to examine the PostScript dictionaries resident in the printer.

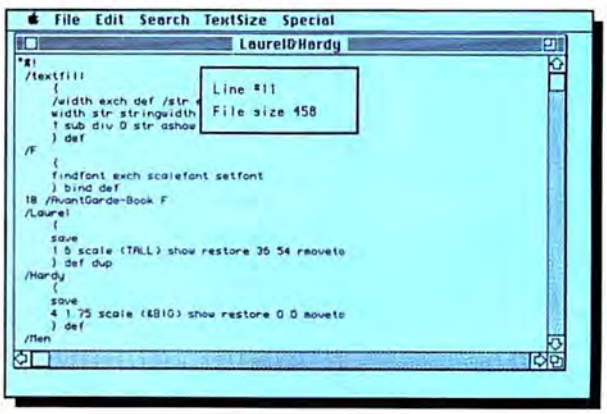
The Edit menu offers the standard, unadorned Macintosh options. Ditto for the Search menu. You can FIND, FIND NEXT, CHANGE THEN FIND, CHANGE, or CHANGE ALL. You must place your insertion point at the beginning of the file if you want to sniff out every instance of the specified text — that dastardly undefined procedure lurking in the back streets of your code, for instance — because *PostHaste* only searches from the insertion point to the end of the file.

The final menu on the bar, Special, lets you determine your printer's status, as explained previously, reset or

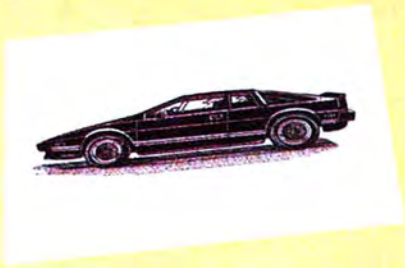


You can also PRINT TEXT, which outputs hard copy of your code (rather than executing it).



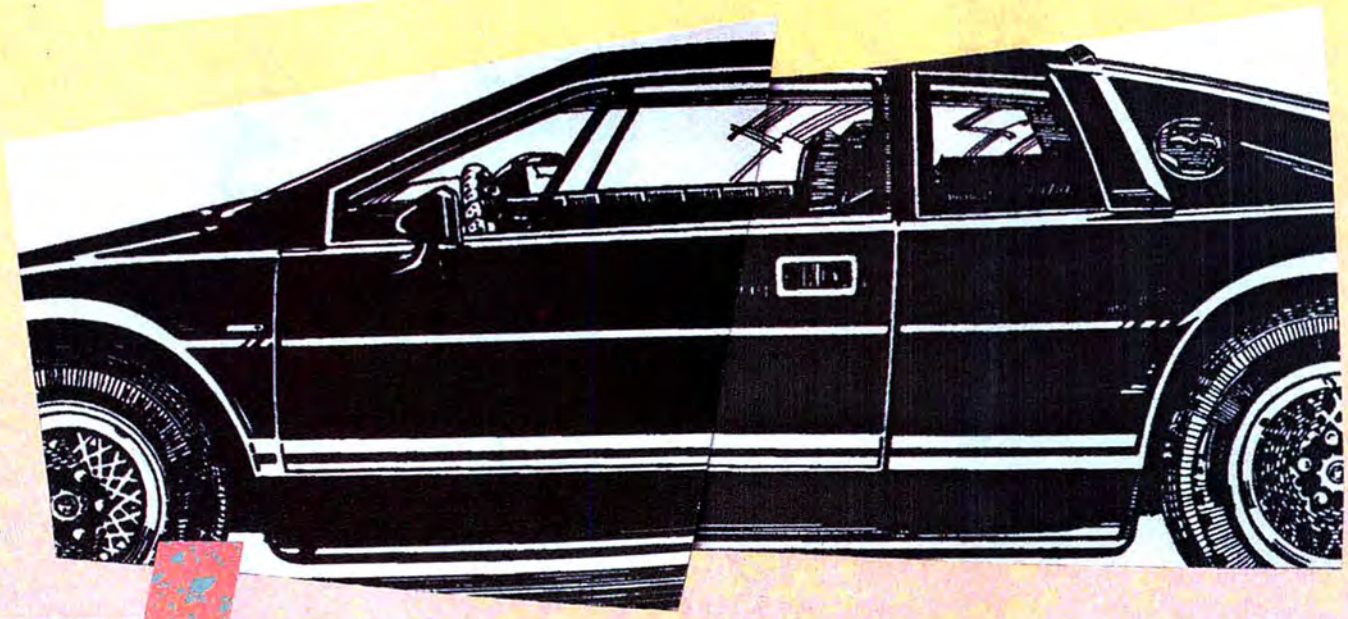


No-frills PostScript programming: *PostHaste*'s Edit window has limited formatting options and few of the programming short cuts supplied by other PostScript utilities. The undocumented "pop-up" box indicates the file size and current line number whenever you drag the vertical scroll box through a file.



These unretouched print samples show the superior print quality of QMS-PS 810 over printers using first-generation print engines.





ntroducing the PostScript laser printer that blacks out at high speeds.

The new QMS-PS® 810 can compose and print the most complex pages in record times, with richer, more saturated blacks than ever before. All with the desktop publishing power of Adobe PostScript®, and the superior print know-how of QMS, an industry leader.

Under the hood QMS ASAP™ (Advanced System Architecture for PostScript) is proprietary technology that helps eliminate the hardware bottlenecks that hinder other PostScript printers. As a result, QMS-PS 810 boasts processing speeds remarkably faster than other PostScript printers in its class. And faster output means greater productivity. In addition, the QMS-PS 810 laser printer's new Canon® SX® print engine covers solid areas and prints fine detail better than previous-generation engines.

The new 8-page/minute QMS-PS 810 laser printer



Fast start, strong finish You can adorn your documents with one or all of the 35 Adobe typefaces. Thanks to PostScript, there's an infinite number of font variations available. You can also make type as large or as small as you want. And put it anywhere on the page. In fact, with PostScript you enjoy total control over the design of your page. It gives you the complete desktop publishing power to do things that would otherwise be virtually impossible. So you get high-quality output exactly how you want it.

Along with PostScript, the HP LaserJet+™, Diablo® 630 and HP-GL™ printer emulations are added for your non-PostScript software.

The QMS-PS 810 laser printer is easy to use, maintain, and comes with a one-year warranty. It's available from Laser Connection dealers. Laser Connection is a sales and marketing subsidiary of QMS. For the dealer nearest you call **1-800-523-2696**.

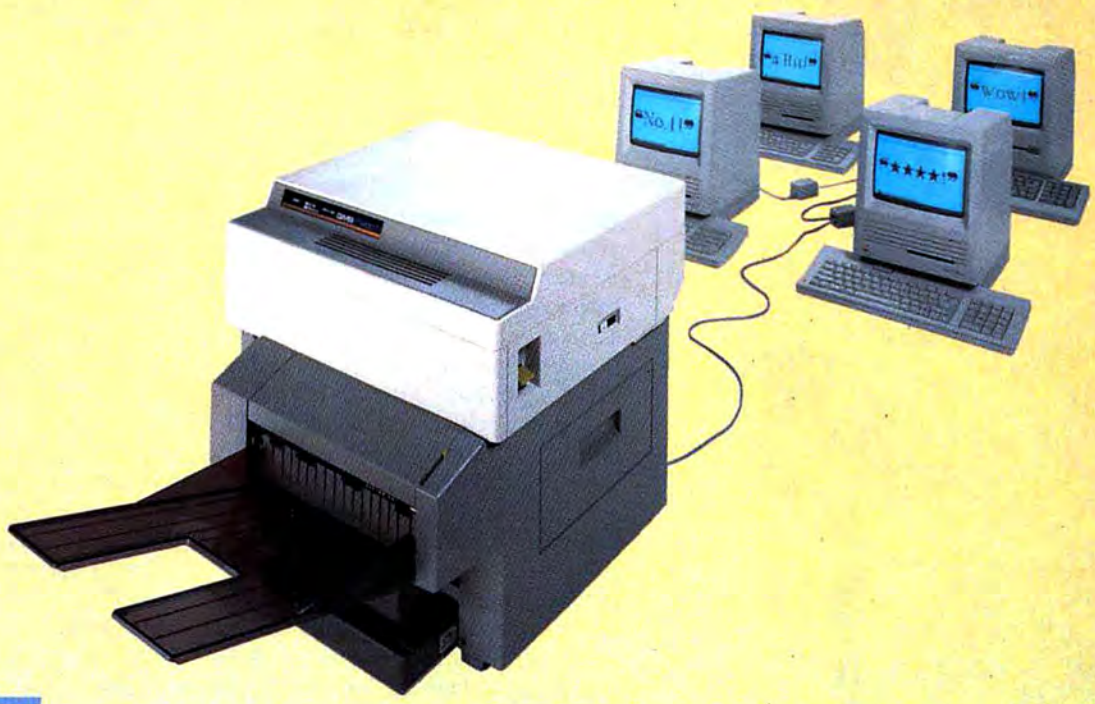
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The PostScript laser printer sure to get high ratings at its network debut.

The new 8-page/minute QMS-PS 800 II laser printer

The QMS-PS® 800 II is an 8-page-per-minute laser printer that combines the desktop publishing power of Adobe PostScript® with the superior printer technology of QMS, a leader in printer technology for 10 years. Exceptional paper handling, faster processing speed and a Canon® CXD® print engine with 10,000-page-per-month duty cycle give QMS-PS 800 II the versatility your Macintosh™ network needs.

A network sensation QMS-PS 800 II holds 500 pages, so operators aren't constantly refilling depleted paper trays. Users can even designate automatic switching between the two trays for doing letterhead/second page printing. Select faceup or facedown collation. And manually feed odd-sized paper stock.

With QMS ASAP™ (Advanced System Architecture for PostScript) proprietary technology, QMS-PS 800 II delivers outstanding performance. In fact, the more complex the page, the more it outperforms other PostScript printers. Two megabytes of memory, expandable to three megabytes, also add to the overall page processing speed when you are creating complex documents.

Type casting The QMS-PS 800 II comes with 35 resident typefaces (you can download more if you like). PostScript allows you to scale type to virtually any size, from minuscule to mammoth. PostScript also enables you to design, and redesign, your documents with exacting detail. You have total control over the final appearance of documents, with the ability to place text and graphics anywhere on the page. In short, you get the complete desktop publishing power that only PostScript can give you.

Critical acclaim The QMS-PS 800 II is certain to receive rave reviews on your network. And for a single-user set-up, there's the QMS-PS 810 laser printer. For a demonstration of either, call **1-800-523-2696** for the location of the Laser Connection dealer nearest you. And be sure to ask for *The Sourcebook*™ – our exclusive catalog filled with the latest laser printer products and enhancements.

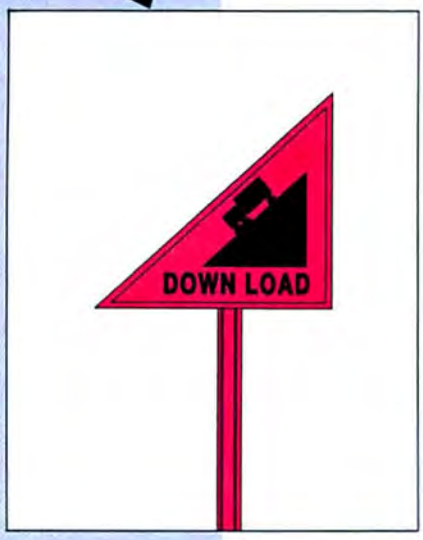
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Unlike previous PostScript-oriented applications, this product does not have a 32K file size limit.

reboot the printer, or launch another application without returning to the *Finder*. The final item is a bit of a throwaway: It prints out an order form so that you can order more copies of *PostHaste* for all your friends and relatives. Oh boy. Instead of wasting space on a self-serving ad, Micro Dynamics, *PostHaste*'s publisher, could have put a more useful function here, such as a way to paste in font calls, for example. *PostHaste* makes waste, indeed.

Unlike previous PostScript-oriented applications (such as *JustText*) that were sometimes used by programmers, this product does not have a 32K file size limit. You're hemmed in by disk space only. Technical support is unlimited and free (except for the phone call) for registered users. The only planned improvement is a *MultiFinder*-friendly version.

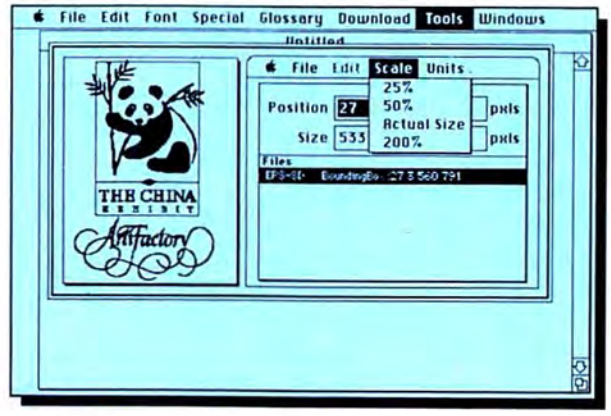
Aside from the irritating order-form menu item, *PostHaste* is a decent little application. Not great, but good. And as a company representative told me, Micro Dynamics itself views *PostHaste* as an example of the low end of the PostScript utility spectrum. If you need page preview, sophisticated debugging tools, or greater ease of use, you need to look elsewhere.

POST-POSTHASTE: POSTILITY

Postility, the second of the three programs in my stable (in terms of both price and functionality), first bolted out the barn door in January of this year. Originally planned and advertised as two separate utilities — one devoted to PostScript programming per se and the other centered on the manipulation of EPS (Encapsulated PostScript) files — it was finally published as a hybrid of the two concepts.

The software comes packaged on one 800K disk accompanied by a typo-plagued 27-page manual, which unlike the *PostHaste* documentation does not include a tutorial. Rather, it simply lists and comments briefly on the program's various features. You'll need at least a 512KE Mac (the program is Mac II-compatible) and *System* 3.2 and *Finder* 5.3 or later. A PostScript printer, although not strictly required, is necessary to make full use of the product.

Entering *Postility* brings up an untitled Document window, just as in *PostHaste,* but there the similarities stop. The heart of *Postility*'s programming power lies in the Special and Glossary menus. Under Special, you'll notice a menu item called INSERT FONT. If you're making frequent font calls within a file, you know what a nuisance it is to keep typing in `/⟨fontname⟩ findfont n scalefont setfont`. It's also frustrating to have to remember the precise font name — is it Helvetica-Italic or -Oblique, Bookman-Roman, -Book, or -Light? *Postility* does this for you. First select the typeface desired under the Font menu (which lists — not in alphabetical order, unfortunately — all the PostScript typefaces in your *System*). Then choose the style (Plain, Bold, Italic, or Bold and Italic) and INSERT FONT from Special. The program pastes the correct PostScript font name and any style extension into



Encapsulated PostScript files that have PICT resource forks can be opened, viewed, combined, scaled, and positioned through *Postility*'s EPS-Merge feature — just one of the program's many EPS tools.

your document at the edit prompt. Finally, pull down Glossary, select BUILD FONT, and the font-declaration operators `findfont, xxx, scalefont, setfont` pop into place. Substitute your scaling factor for the `xxx` and you're ready to move on.

You can paste in any other PostScript operator by selecting POSTSCRIPT HELP! from the Special menu or by pressing Command-E. Choose the operator from the list presented and the appropriate section from the "Red Book" appears on-screen. You can then click the Insert button.

In addition to BUILD FONT, you'll find three other predefined Glossary entries: EPS HEADER, LANDSCAPE MODE, and MANUAL FEED. Selecting any of these will paste in the necessary PostScript code to do what each name implies. With the ADD ITEM TO GLOSSARY or MAINTENANCE commands, you can add to or delete items from this list and insert your own code into PostScript programs.

INSECTICIDES

Once a program has been typed in, a document opened, or a text-only file imported, the EXAMINE FILE command of the Special menu can perform limited syntax checks before downloading. This function scans the file to ensure that every save has its restore, checks that parentheses and brackets are balanced, and looks for nondeclared variables and procedures.

SHOW DEFS provides an alphabetical listing of all variables and procedures defined in the active window. And POSTSCRIPT HELP! does more than just paste in operator names as described previously; you can also use it during debugging. Should the use of any PostScript operator stop your program dead in its tracks, highlight the word and choose the help feature from the Special menu or press the Command-key shortcut. This displays the relevant operator with help information (and page references) taken straight from the horse's mouth: Adobe's *PostScript Language Reference Manual* and the *Tutorial/Cookbook*.

HOW'S THAT, MY PRETTY?

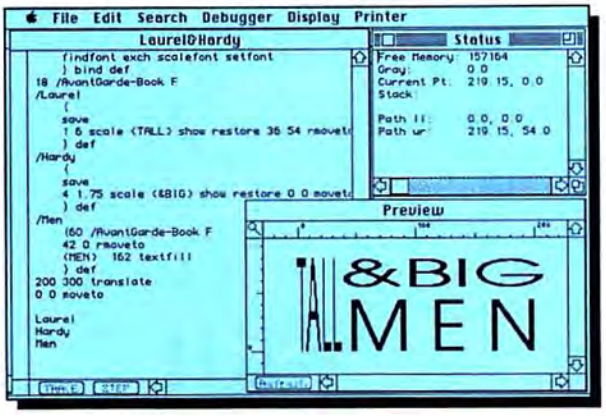
You can improve the format and legibility of your file on-screen (and in hard copy) with the PREFERENCES item in the Edit menu. PREFERENCES lets you change the screen font (and, unlike *PostHaste*, also the printing font), point size, and tabs, and it supports auto-indent. Shift-Left and Shift-Right shift the current line of code left or right one tab stop. PRETTY PRINT from the File menu prints out the hard copy with all reserved words and PostScript symbols (such as /, %!, }, and so on) emphasized in bold.

GOODY FOR YOU!

The Download menu features the standard options for downloading the active window or a saved file, just as with *PostHaste*. But it also lets you download a PostScript font to the printer. This is where you can check out the printer's status through a menu choice. It's also here that you come face to face with "Goodies." These are items that function similarly to Glossary menu items, but normally when



SHOW DEFS provides an alphabetical listing of all variables and procedures defined in the active window.



***Lasertalk*'s Preview window is just one of the program's innovative features. After capturing the contents of the PostScript printer's raster memory, *Lasertalk* provides an on-screen representation.**



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you select them, they're sent to the printer rather than pasted into the open file. This feature requires, unlike many of the others in *Postility*, an online PostScript printer.

Five Goodies are supplied and appear in the Goodies list. Font List displays the names of all the fonts present in your printer (both resident and downloaded ones) in a feedback window. Printer Info tells you the printer's name (I cleverly call mine "LaserWriter Plus," the LaserWriter equivalent of "kitty"), available memory, PostScript version, and the number of copies churned out to date. Reset Laser, Startup Page Off, and Startup Page On are self-explanatory. As with Glossary, you can add or delete items. You can also paste a Goodie's code into a file rather than downloading it by holding down the Option key before accessing the Download menu.

The code for all the predefined Glossary and Goodie items is provided in printed form in two appendices.

EPS FINESSE

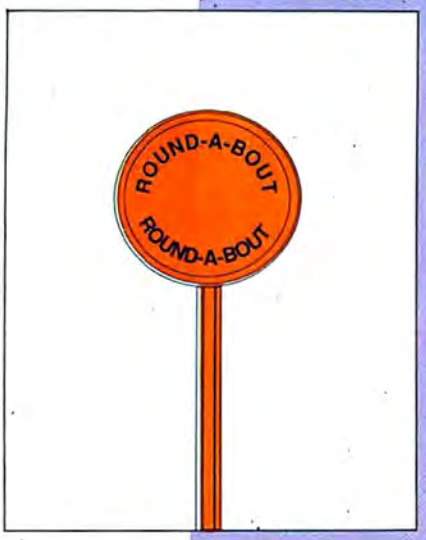
Postility does more than just mosey along as a text editor. Its real strength lies in its ability to handle EPS files. The Tools menu provides you with all you need.

MERGE/PRINT EPS, although ostensibly a menu item, looks and acts a lot like a separate program within a program—complete with its own menu bar and its own Apple, File, and Edit menus. This miniprogram makes possible the combination of two or more EPS files — such as those created in Adobe *Illustrator* or *FreeHand*. You open the files and manipulate their position and scaling factors, either through menu choices or by entering the appropriate numbers in boxes. Measurement units can be inches, centimeters, picas, or pixels. (It might have been more logical to call these units points, especially as you're dealing with a PostScript program!) You can save the resulting amalgam under a new name and use it in other programs.

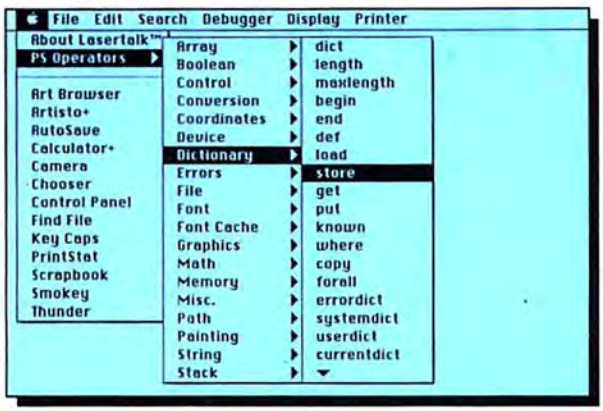
Several file-format conversions are available. PICT TO EPS translates PICT files to EPS, which can then be saved. EPS TO PICT extracts the PICT portion (stored in the resource fork) of any EPS file and saves it as a separate file that can be used in other applications. EPS TO TEXT removes the PICT fork and saves the PostScript code as a text-only file. There are three other EPS-related items in the Special menu: VIEW EPS PICT, GET EPS PICT, and ADD EPS PICT. It's odd that they weren't placed under Tools; perhaps the hybrid nature of *Postility* accounts for the inconsistency.

If the last item on the Tools menu, BACKGROUND GEN, seems familiar, you've probably used *Laser FX*, a PostScript special-effects utility published by the same company as *Postility*. It generates and saves background screens that are more imaginative than those found in most page-layout programs.

In many respects, *Postility* improves on *PostHaste*. Its search commands are better. You can search for text selected in the active window, and there's a SELECT ALL command. Un-



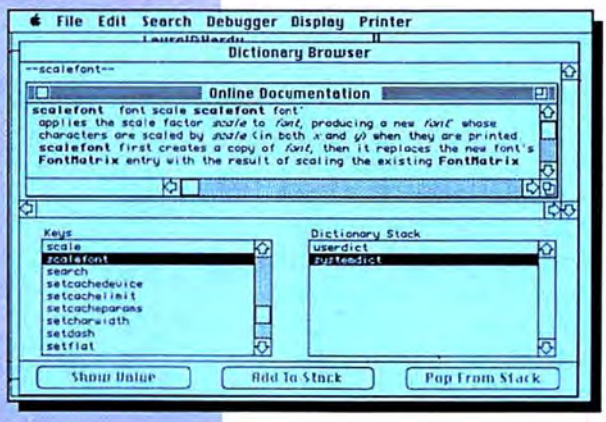
Five Goodies are supplied and appear in the Goodies list.



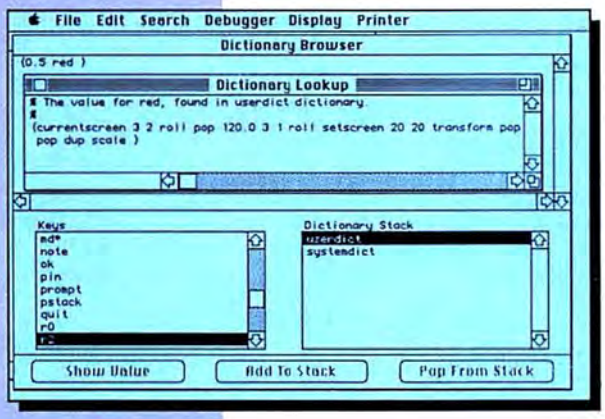
One form of help in *Lasertalk* is through the PS OPERATORS feature under the Apple menu. This hierarchical menu lets you select an operator and access on-screen information about it taken from Adobe's Red and Blue Books.

"Buy it right, or, we'll take it back."

–Réal Provencher



More help is on the way with *Lasertalk*'s sophisticated DICTIONARY BROWSER and ONLINE DOCUMENTATION features. The latter provides the same information as *Postility* does but goes the extra mile by supplying it in a more attractive, Mac-like interface and with clearly annotated examples of usage.



Lasertalk's DICTIONARY LOOKUP can even open up user-defined variables and procedures stored in the PostScript userdict dictionary or in any custom dictionary you create.

like *PostHaste, Postility* works under *MultiFinder*. Phone support is unlimited for all registered users, but you'll have to call the company's Canadian number if you need detailed technical support.

POP POP FIZZ FIZZ

PostHaste and *Postility*, move over. Or for those who know: `PostHaste Postility Lasertalk roll pop pop`. *Lasertalk*, from Emerald City Software, started shipping in January of this year. It attracted a lot of attention at Macworld Expo in San Francisco, where most passersby, including myself, stood awestruck and mouth agape as *Lasertalk*'s papa, Randy Adams, and well-known PostScripter David Holzgang demonstrated the product.

The software comes on two disks: one contains *System* files (*Lasertalk* requires Version 4.1 or later); the other holds the application, documentation files, exercises for the two tutorials, and several example files. The program is copy protected, but registered users receive an unprotected version.

INTERACTIVE REACTIVE

Once launched, *Lasertalk* searches for a PostScript printer somewhere on the network. When it finds one, it gives you the option of connecting or of working off-line. Clicking Connect brings up the Interactive window and the `PS⟩` prompt that indicates that program and printer have "shaken hands" and are ready to negotiate with one another. You now have full access to the PostScript interpreter controlling the printer. Anything typed in here is shot off to the printer when you press Return. The interpreter immediately responds at the next prompt and, should there be problems, with an appropriate PostScript error message. This window, as do all windows in *Lasertalk*, has scroll bars and a zoom box. All the usual Edit functions are available. The Interactive window also provides a Clear Stack button that issues the `clear` operator, which empties the PostScript stack (the PostScript code that's currently in the printer).

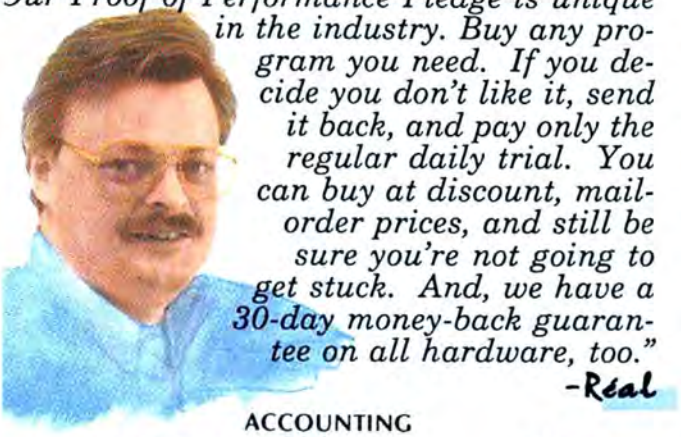
If you already have a program saved to disk or want to work off-line, you can open up a Document window. Assuming that you are on-line to a printer, you can download this window "as is" or choose TRACE or STEP. TRACE sends the code line by line without stopping; STEP sends a single line and then waits. You can also set "stop signs" at any point in your program, using a simple icon-based system in a scroll bar at the left of the Document window. Choosing TRACE with stop signs set causes *Lasertalk* to send the program up to the next stop sign. Error messages from the interpreter are returned to the Interactive window. Unfortunately, in the current version, you cannot place stop signs inside a procedure.

At any point in this process, you can effortlessly glide back and forth between the Interactive and Document windows through the Display menu or by clicking on a window. You can download a section of the file, read the error messages, correct your code, and

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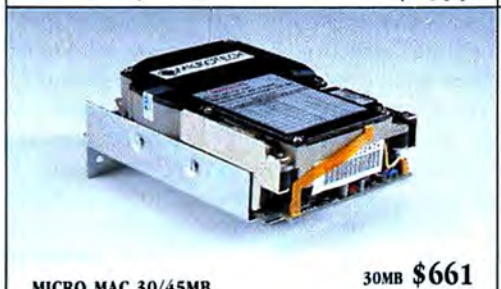
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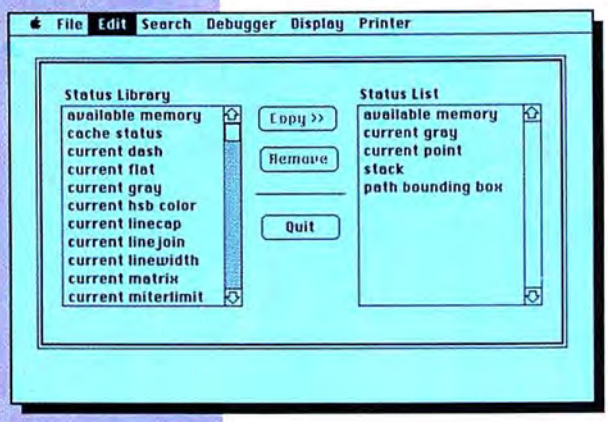
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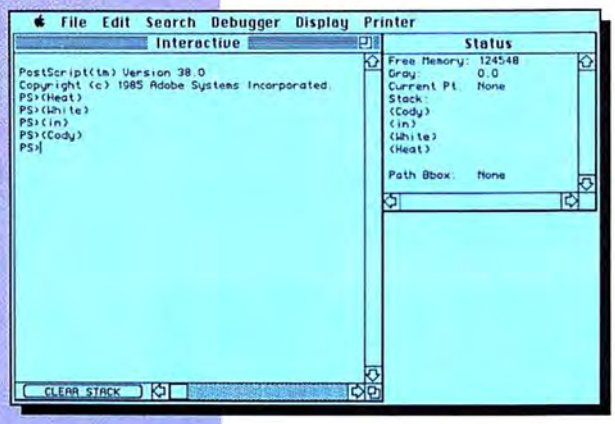
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One of *Lasertalk*'s main windows is Status. It can be customized, as here, to display various information about the printer's memory and graphics state.



"Made it, Ma. Top of the stack!" Watching items appear on and disappear from the PostScript stack in *Lasertalk*'s Status window can be useful in debugging as well as educational for beginning PostScript programmers, who can vividly see just how the various PostScript operators affect the graphics environment within the printer.

continue downloading with TRACE or STEP.

NEEDLE IN A HAYSTACK

Once you've downloaded a file to the printer (without the `showpage` operator, which would flush the printer's memory), you can select the Preview window via the Display menu. And here you'll encounter *Lasertalk*'s claim to fame. A window pops up displaying the result of your code as soon as you execute a `showpage`. You may have to hunt around for your graphic, but if you've kept track of its page coordinates, you can scroll to it, relying on the rulers in the Preview window.

The graphic appears at four times its intended size because of the way *Lasertalk* captures the raster memory of the printer. But there's a way to fix this. Return to the Interactive window and type in `r2`, `r4`, or `r8` (predefined procedures that scale the graphics environment of the printer for reduced views). Go back to the Preview window and refresh it by clicking the appropriate button. The code `r4` redefines the screen appearance of the Preview window so that you can see your document more or less as it will print out in its actual size. But before printing you must restore the scaling factor by typing in `r0` in the Interactive window; otherwise, the printout will be reduced. Also remember that these procedures (`r2`, `r4`, and so on) scale the rulers as well. So it can sometimes be confusing — your graphic may appear to be lost. Generally, you'll find it in the lower left-hand corner of the window.

HERE'S LOOKING AT YOU, KID

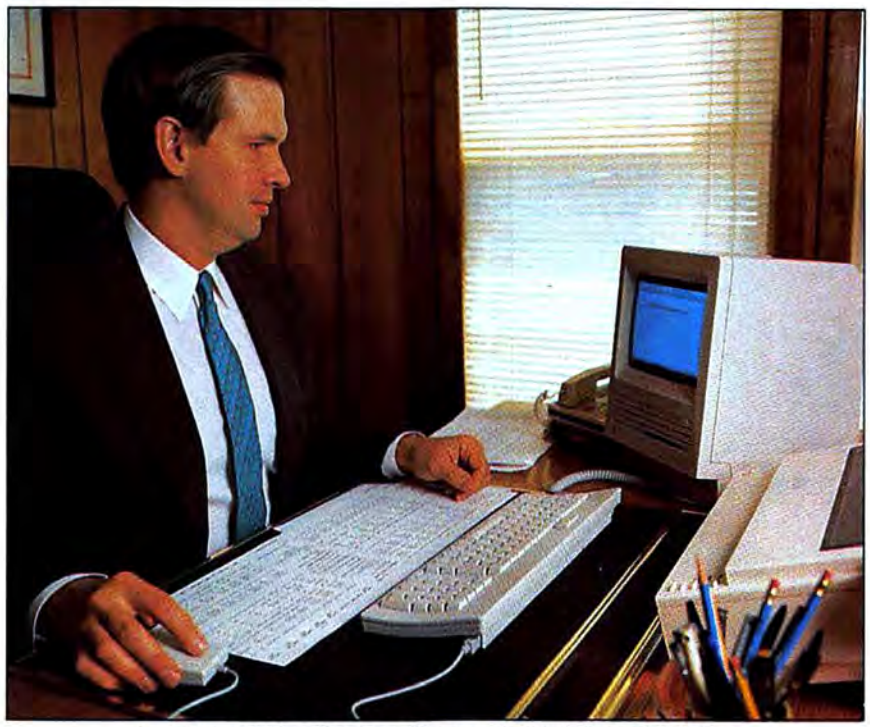
Lasertalk has already been looked at in "Quick Clicks" (*MacUser*, May '88), so I'll focus on those features that set it apart from the other two programs reviewed here.

Its help features are exceptional. You access them through PS OPERATORS under the Apple menu. This option provides you with a hierarchical menu that allows you to extract information from Adobe's books on all the PostScript operators. When the online Documentation window appears, you can select or double-click on any boldface word and click Command-D (or use a menu choice) to find additional explanations also taken from Adobe's publications. Examples of usage accompany many of the entries. This same technique also works in the Interactive window. Through *Lasertalk*'s various help functions, such as DICTIONARY BROWSER and DICTIONARY LOOKUP, you can view active PostScript dictionaries — down to the level of the definition of keys in the `userdict` dictionary.

STATUS SYMBOL

Status is yet another *Lasertalk* window. It provides information on various aspects of the PostScript environment within the printer and is continuously updated as new code flows in from either the Interactive or Document window. The items displayed can be customized. The great thing about the Status window is that you can see on-screen the current state of the PostScript stack directly under

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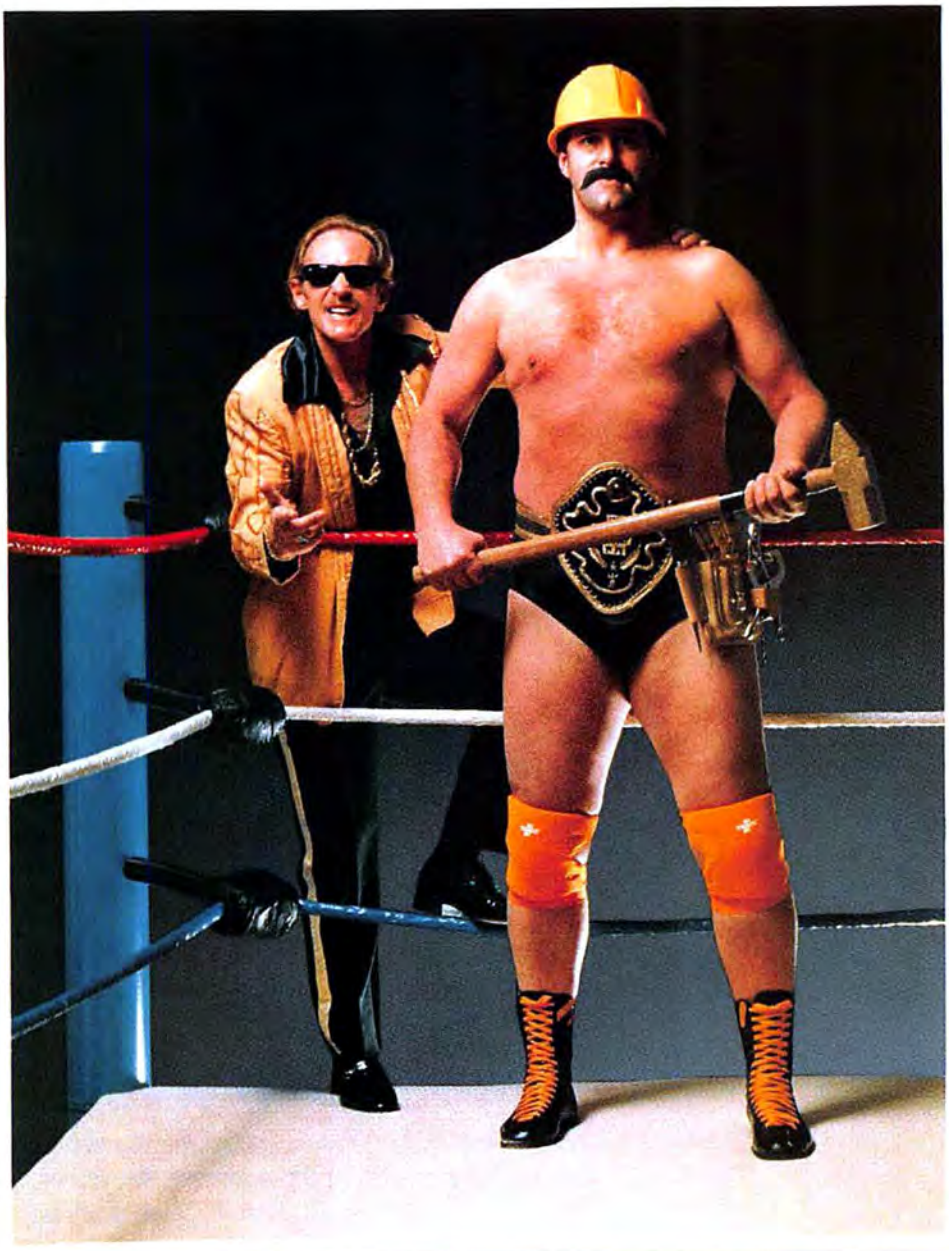
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As Well As Characters Like These.

THE BIG EVENT

The Marketing Events Newsletter Of The Civic Arena Manager

Issue Number 36 *Spring/Summer 1988*

Event Staff Pin Big Attendance Figures On Wrestling Matches



Manager Marty "The Mink" Mintz with "The Human Sledgehammer"

"Let me tell you one thing. Do you really think I care who I have to beat to a pulp to defend my belt? That is, if I can find anyone without a wide yeller streak down his back to take me on. My daddy always said, 'If you can't stand the heat, kick out a window.' And brother, I see a lot of broken glass!"

The rantings of a mad man? Perhaps. But "The Human Sledge-Hammer" and dozens of other wrestlers like him are just mad enough to bring wrestling fans by the thousands to civic arenas all across the country.

For many marketing managers wrestling matches have become the rock concert attractions of the '80s.

"Wrestling is a proven sports attraction," says Bernie Turk, events manager for the Los Angeles County Sports Dome.

"It seems everytime you flip through the channels on your television, you run across a wrestling match. They're on Saturday morning cartoons. You go in a toy store and you see their action dolls. People just can't seem to get enough of them."

Industry attendance figures seem to prove Turk's point.

In the first two months of the year, there were 37 wrestling matches held in the country. From a 57,000 seat arena in Denver to a 3,000 seat junior college gym in Raleigh. Total attendance for the matches has been estimated to be in excess of 500,000.

And it doesn't show any sign of slowing down.

More Facilities Benefiting From Hotel Tax

Seattle and Bismarck, North Dakota are just two cities that have passed legislation to enact an "entertainment tax." Hotel and motel rooms, along with restaurants, add a surcharge to each customer's bill to help finance improvements to public convention, meeting and entertainment facilities.

"It's worked wonders for us," says Linda Connell, the chairperson of the Bismarck Meetings Group. "The amount of the tax, which varies depending on the item taxed, hasn't affected us negatively in any way at all."

"We were a little leery at first of visitors complaining about the tax, but it's so little no one seems to really notice. But even though it seems small, it really adds up quickly."

How has the tax helped Bismarck?

"Very well," according to Connell. "This spring we'll be financing over 15,000 new square feet of exhibition space for our convention center. That's space that otherwise wouldn't have been available. Unless we passed a bond issue— which never seems to be a very popular idea."

For more information on how your city can benefit from similar legislation, please contact the public affairs office of *The Big Event*.

Deadline Approaching For Next Month's Articles

Remember, the deadline for all articles submitted to *The Big Event* is the 10th of each preceding month.

Send your pieces, double-spaced please, to Carol East, Events Coordinator, POB 8384, Seattle, WA 89382.

Dates To Remember

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National Events Association
August 18-22
Portland, Oregon

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the Stack:tag, which is invaluable for learning how PostScript really works.

Compared with the other two PostScript utilities described in this article, *Lasertalk* really cooks. Its search, edit, and format functions include and improve on everything the other two do. It excels at debugging in ways that the other programs only hint at. The manual is exceptional — outstanding in appearance and content. The tutorials, although confusing at times (in part because of typos), are well worth the effort. The interface is one of the best implementations of the Mac environment I've ever worked with — sleek, quick, a joy to use.

POSTSCRIPT POSTSCRIPT

If you fiddle with PostScript or are thinking of fiddling with it, you can spare yourself the frustration of reinventing the wheel with these PostScript utilities. Any one of them can help turn an amateur fiddler into an instant Jascha Heifetz — or at least a Jack Benny.

Lasertalk is easily the best of the bunch. *Postility* offers a good compromise between price and power, especially if you're interested in EPS. *PostHaste* has some nice features and a cut-rate price, but it's strictly for beginners. Whichever you choose, your PostScript fiddling will immediately improve a notch or three. For, as all fiddlers know, there are two ways to get to Carnegie Hall: Practice . . . or take the express bus.

GREGORY WASSON IS A FREE-LANCE DTP TYPESETTER AND WRITER. HE RECENTLY MOVED DOWN FROM A MOUNTAINTOP TO LIVE IN A GULCH NEAR SANTA CRUZ, CALIFORNIA. HE FORMERLY PURSUED GRADUATE STUDIES IN CLASSICAL GREEK AT THE UNIVERSITY OF TORONTO. TRAGEDY TURNS HIM ON.

MACUSER RATING

Postility 1.0 ¢¢¢¢

Follows Mac Interface	■ ■ ■ ■ □
Printed Documentation	■ ■ □ □ □
On-Screen Help	■ ■ ■ □ □
Performance	■ ■ ■ □ □
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ ■ □

Comments: Souped-up utility program for serious PostScript programming and the manipulation of EPS files. Excellent buy and well designed. **Best Features:** EPS tools; good on-line help; ability to paste in saved pieces of commonly used code via the Glossary function. **Worst Feature:** Shoddy manual. **List Price:** $99. Published by PostCraft International, Inc., 27811 Avenue Hopkins, Suite 6, Valencia, CA 91355; (805) 257-1797. Requires 512KE+. PostScript printer highly recommended. Not copy protected.

MACUSER RATING

PostHaste 1.0 ¢¢¢

Follows Mac Interface	■ ■ ■ ■ □
Printed Documentation	■ ■ □ □ □
On-Screen Help	none
Performance	■ ■ ■ □ □
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ □ □

Comments: Low-cost, plain-Jane utility for PostScript programmers. Fair to middling in all respects. **Best Features:** Pop-up line indicator when using the vertical scroll bar; ability to send only selected portions of the active Document window to the printer. **Worst Features:** The PRINT ORDER FORM "feature"; lack of good debugging tools; skimpy manual. **List Price:** $59.95. Published by Micro Dynamics Ltd., 8555 Sixteenth Street, Suite 802, Silver Springs, MD 20910; (301) 589-6300 or (800) 634-7638. Requires 512K+. PostScript printer highly recommended. Not copy protected.

MACUSER RATING

Lasertalk 1.0 ¢¢¢¢¢

Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ ■ ■ □
On-Screen Help	■ ■ ■ ■ ■
Performance	■ ■ ■ ■ □
Support	■ ■ ■ ■ ■
Consumer Value	■ ■ ■ ■ ■

Comments: Incredible, must-have program that creates ideal environment for hard-core PostScript programming and debugging. **Best Features:** A Preview window that allows you to see the result of your code before you print; outstanding on-line help functions; easy-to-use, sophisticated interface; beautiful manual. **Worst Feature:** Sometimes-confusing tutorials. **List Price:** $249. Published by Emerald City Software, 97 Jennings Lane, Atherton, CA 94025; (415) 368-8303. Requires Mac Plus and PostScript printer. Copy protected (unprotected version sent to registered users).

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Macintosh II Benchmarks

Dhrystone	Aztec C	MPW-C	Lightspeed
Build Time (sec)	16	25	22
Object Size	4k	4k	107k
Code Size (bytes)	9824	10976	17090
Run Time	258	299	299

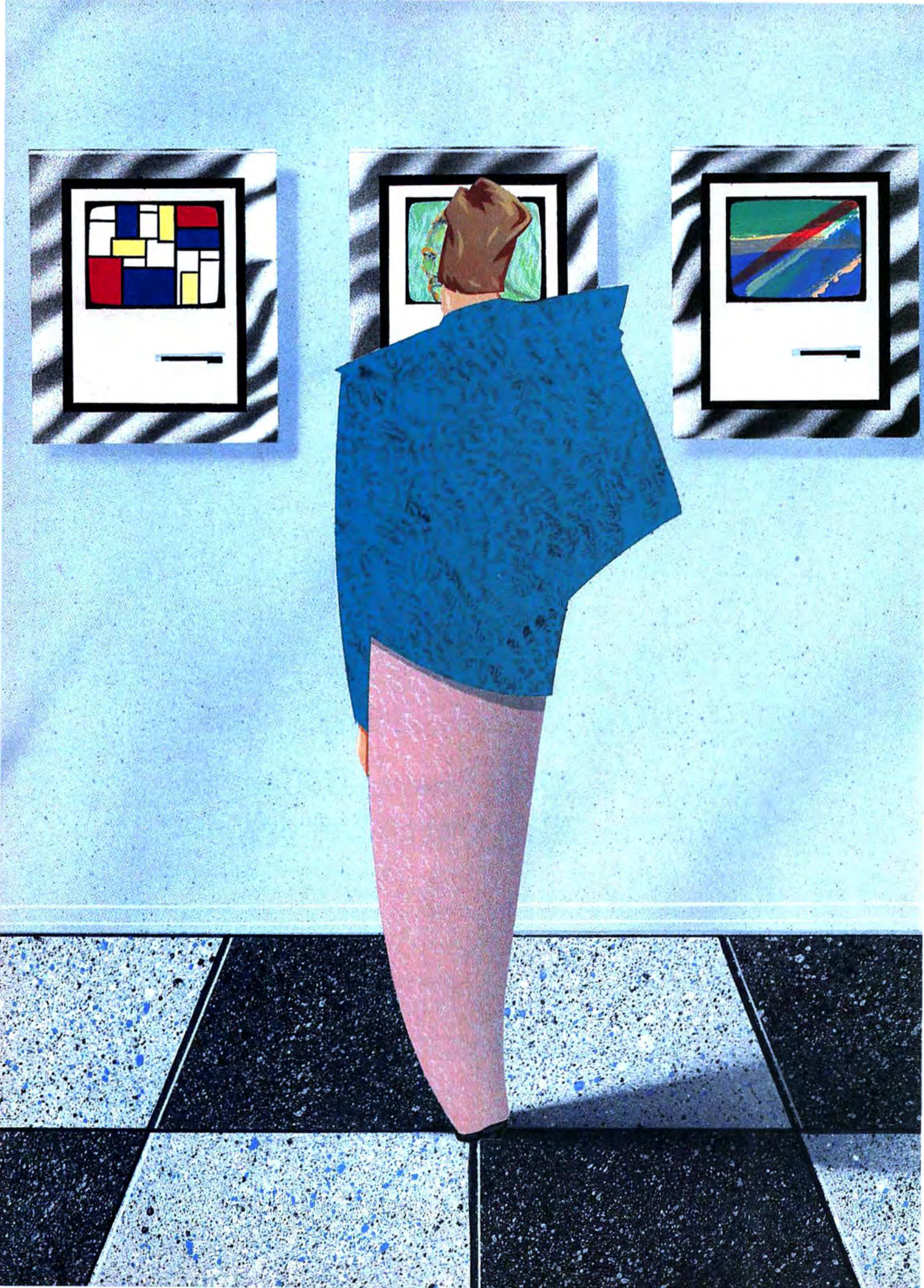
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You Gotta Have Art

Hanging out with Art is fun. Art is a real cut-up. But, sometimes, Art can have a clip on his shoulder.

In the beginning Apple created the Macintosh. And on the seventh day, there was electronic clip art. Mind you, this clip art wasn't perfect, but the dot-by-dot renderings in *MacPaint* were all the Mac had available.

Now, thanks to Adobe's PostScript language, the Mac can really take advantage of high-resolution output devices such as the LaserWriter. The LaserWriter, whose 300 dots per inch (dpi) resolution is about four times that of the ImageWriter and the Mac screen, is the lowest resolution device to consider when you're using PostScript. And with Linotronic output, you're dealing with resolutions four and even eight times greater than the LaserWriter's.

Some programs (*Adobe Illustrator* and Aldus' *FreeHand* are two good examples) can create this kind of art. What you draw on the screen in these programs is translated into PostScript commands for the output device. Layout programs like *PageMaker* and *Ready, Set, Go!* can import and then print the PostScript pictures.

With PostScript-oriented programs, you can create an entirely new type of document. It's called an EPS or EPSF (Encapsulated PostScript Format) document. You can print a file that is PostScript-only, but you can't display it on the screen (unless you have a machine that uses Display PostScript). EPS goes further. EPS files contain both the PostScript commands for the printer and information that draws a representation of the figure on the Mac screen. That way, you can both see the art (at the Mac's lower screen resolution) and print it (at the printer's *much* higher resolution).

TAKE THE EPS CHALLENGE

Why should you switch to EPS? Perhaps you use bit-mapped graphics and are happy with the output on a LaserWriter. But imagine these working conditions:

- PostScript art works even when it's enlarged: curves remain curves without jagged edges.
- PostScript art can be rotated without distortion.
- PostScript art can be scaled without losing the proportions within the picture. Picture a picket fence created as a bit map or object, where there's a line for a picket every fifth pixel. Now, scale that to half its original size. There's no such thing as a fraction of a dot, so you can't get a line every 2.5 pixels; instead, you get alternating 2- and 3-pixel widths.
- Last, but by no means least, PostScript art *looks* better. Much of it looks like traditional paper clip art, with shades of gray, smooth curves, and thin (really thin) line weights.

BY SHARON AKER

PostScript Clip Art Comparison

	Quantity	Quality	Usefulness	Consumer Value
3G Graphics: Images With Impact $99.95 5 Mice	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮
ArtWare: Assortment $69.95 2 Mice	▮▮▮▮	▮	▮▮	▮
ArtWare: Borders $129.00 4 Mice	▮▮▮▮▮	▮▮▮▮	▮▮▮▮▮	▮▮▮▮
ArtWare: Equestrian $89.95 2 Mice	▮▮▮	▮	▮▮▮	▮
Click & Clip: Spring '88 $39.95 3 Mice	▮▮▮▮	▮▮▮	▮▮▮	▮▮▮
Click & Clip: Winter '87 $39.95 2 Mice	▮▮▮▮	▮▮	▮▮	▮▮
Image Club: Vol. 1, Miscellaneous $99.00 4 Mice	▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮
Image Club: Vol. 2, Miscellaneous $99.00 5 Mice	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮
Image Club: Vol. 3, Miscellaneous $99.00 5 Mice	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮
Image Club: Vol. 4, People $99.00 5 Mice	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮
Image Club: Vol. 5, People $99.00 5 Mice	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮
Image Club: Vol. 6, Business/Industry $99.00 4 Mice	▮▮▮▮	▮▮▮▮▮	▮▮▮▮	▮▮▮▮
Image Club: Vol. 7, Maps $99.00 5 Mice	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮	▮▮▮▮▮
T/ Maker: EPS Illustrations $129.95 3 Mice	▮▮▮	▮▮▮▮	▮▮	▮▮▮
Olduvai: Post Art $69.95 1 Mouse	▮▮▮	▮	▮	▮

You have to get used to some things when you switch from bit-mapped clip art to EPS. For instance, an image in an EPS document appears as a single, often small, picture in the center of the page. After dealing with paint documents that have images packed into every available space on a page, you might at first think this approach minimalist. But it's necessary because programs like *PageMaker* place the entire document into the designated spot. Although you could crop the parts you don't want to see, there's no reason to add to the size of your file by placing lots of images you won't use.

You'll also find changing EPS art is not as easy as altering a graphic you just slap into a paint program. First, you have to own one of the high-end drawing packages, like *Illustrator*. Then, you have to know how to use it.

Eventually, you're going to go the EPS route for your clip art. The reasons are compelling. The results will speak for themselves. But the question is what package or packages should you buy?

Six companies now publish EPS clip art, and some have more than one package available. Olduvai had one package out by the time of this article. Their second package should be out by the time you read this. T/Maker has one package out. 3G Graphics' first package was out by press time. Image Club has a bewildering collection of disks, disk combinations, and even a CD-ROM version of its art. Studio Advertising Art has the first two of its promised quarterly offerings out and a special 500-image collection on the way. And ArtWare offers three packaged sets, two that are single 800K disks, and the latest, a three-disk set.

POST ART

In the standard sense, Olduvai's *Post Art I* isn't really clip art. In fact, it may not even be art. Billed as the first art gallery on disk, *Post Art I* is a collection of signed originals. Well, sort of. They're original, and they're signed, but somehow a mass-produced disk doesn't lend itself to the term as used in the art world.

The documents in *Post Art* were created in *Illustrator, Cricket Draw,* and *MacDraw*. You can take pixels of the works and use parts of them as clip art, but Olduvai's intent is for you to use them in presentation or as posters.

Not that this is any advantage, but all the works on *Post Art I* are of a high-resolution format that allows you to enlarge or reduce a print to any size without losing any of the resolution. As of my deadline, Olduvai was getting ready to ship *Post Art II*. This second version contains works similar to those in the first, plus drawings created by other artists. For those of you who actually bought *Post Art I* and liked it enough to want more, Olduvai

is offering upgrades at a discount price of $30.

T/MAKER ILLUSTRATIONS

T/Maker was the first company to supply clip art for the Mac; if you've been with the Mac since the beginning, you probably remember Jimmy and Al, and the egret.

T/Maker's first EPS offering is *Illustrations*, a set of four 800K disks. That's not as generous as it first seems. Working on the premise that you'll have a program that can use the art, but not one that can alter it, *Illustrations* offers multiples of many items, with variations only in position and shadings. For instance: a ball-point pen in white, gray, and black and white; a pencil presented in three rotations; a telephone in white, black, and shades of gray; prize ribbons labeled 1st, 2nd, and 3rd place. You get the picture.

As for art in *Illustrations*, the figures are clean and crisp, and most have an art deco look to them. The majority are black and white (lots of black) instead of shades of gray. For an overall rating on a scale of Not Great to Really Terrific, *Illustrations*' art falls somewhere between OK and Good.

Illustrations is an eclectic collection of art with no theme. While this virtually guarantees that you'll find something you can use, it also means that most of it will be wasted. If T/Maker categorized its clip art, you could be more sure of getting something useful out of your investment.

The manual that comes with *Illustrations* is an all-purpose booklet that goes with both the Mac product and the one made for other computers. Unfortunately, we have to sink to their level: document names are limited in characters (LghtBulb, Megaphon), have three-letter extensions (Porsche. EPS), and use underlines instead of spaces (Ribbon _ 2). The manual shows all the images available on the disks, but you have to look through the pictures, check the name of the one you want, then go to the directory at the back of the book, look up the name, and find out which disk it's on. Surely there are better ways of doing that, even on paper.

CLICK & CLIP

The *Click & Clip* line is from Studio Advertising Art. *Click & Clip* is issued seasonally, with two 800K disks available each quarter. The Winter 1987 and Spring 1988 volumes were available for review; a special *Click & Clip* 500 Library should also be available by the time you read this.

In addition to the disks, each *Click & Clip* issue includes printouts of the art. Although each package includes a table of contents that notes which pictures are on which disks, there's no indication on the disk labels as to which one is which. The Winter issue has a few nice line drawings, but most of the selections are simple sketches that are stiffly drawn. It contains general art as well as some season-specific items like Christmas trees and football helmets. The Spring issue, however, shows great improvement, and bodes well for subsequent releases if the improvement continues.

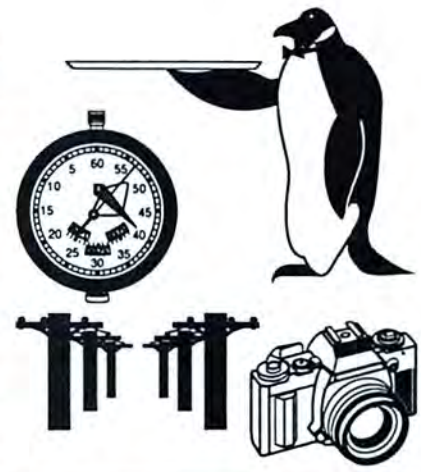
You can buy issues of *Click & Clip* separately as they come out, or you can subscribe for a year and get a significant discount on the four issues. My advice is to skip the subscription until you've seen the current and then the next issue, because there's such a big difference in the two issues I've seen. If the quality remains steady or — preferably, keeps improving — then consider the subscription deal.

ARTWARE

ArtWare allows you to design your own "customized" disks. As a "subscriber," you receive a picture catalog and subsequent updates from which you make up your own disk.

ArtWare also offers packaged sets. The packaged sets currently available are "Assortment," "Equestrian Images," and "Borders." The first two are single 800K disks, while the last is a three-disk set. To make your own packages, simply select items from the catalog, adding up the sizes (in kilobytes) that are noted for each image. (Doing this manually seems pretty archaic.)

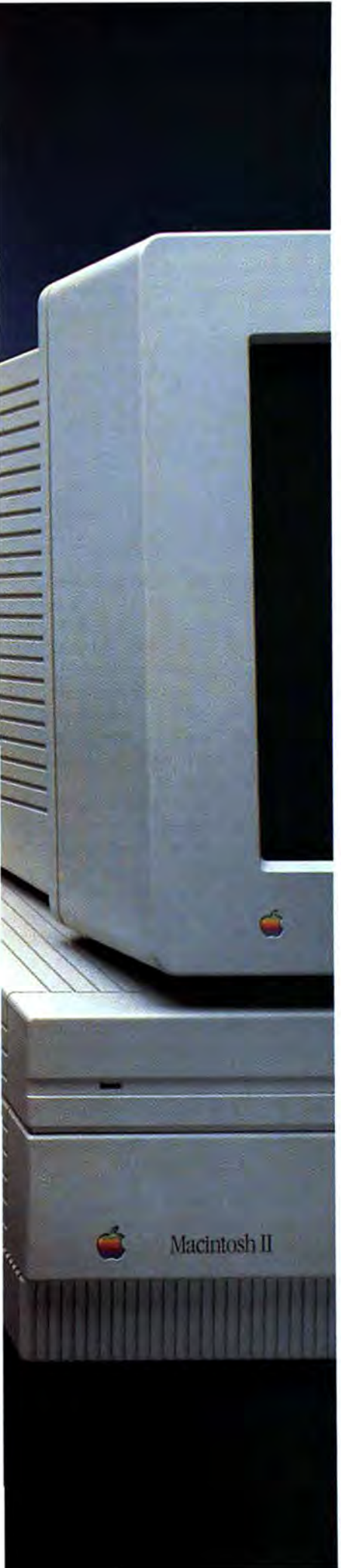
Unfortunately, *ArtWare*'s approach is more interesting than its product. The border collection is attractive and well done, but the major-



Samples from T/Maker's EPS *Illustrations*.

On the precise scale that runs from Not Great to Really Terrific, *Illustrations*' art falls somewhere between OK and Good.


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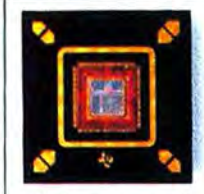
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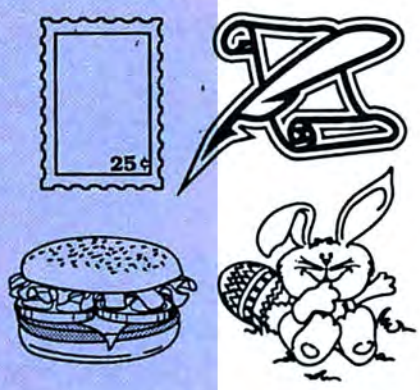
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The two figures at the top are from *Click & Clip*'s Winter collection; the two bottom figures, from the Spring issue, show the improvement.



Samples from Image Club's *Digit-Art* series.

Make Room for Art

Image Club Graphics has so much clip art, they decided to put it on a CD-ROM. But when you put twenty-five 800K discs' worth of clip art onto a CD, there's still plenty of room left over. So, in addition to over 1,000 images from the *Digit-Art* collection, the *ArtRoom* CD disc also includes: 100 pieces of color clip art, 100 downloadable LaserWriter fonts, and a specialized version of Symmetry's *PictureBase Retriever* desk accessory — called, of course, the *Image Club Retriever*. (Ads placed before their time claim *Curator* is the art manager for the CD, but it just didn't work; hence, the switch to the *Retriever*.)

The *ArtRoom* CD disc looks nice. As for its contents, well, I can't tell you, since the CD-ROM drive was delayed because another writer held onto it for a little longer than expected. Oh well.

ArtRoom is available for $999; for an additional $249, you get a multiuser license for all its contents. Multiuser licenses are also available for Image Club's floppy disks.

ity of the images in both of the other collections are awkward and amateurish.

IMAGES WITH IMPACT

If I had to choose only one package of EPS art, I'd take 3G Graphics' *Images with Impact*. The quality of the artwork is wonderful, and the attention to detail is impressive.

The pictures in *Images with Impact* are loosely divided into Graphic Series, Multi-Graphics, Portfolio, and Symbols.

A Graphic Series is a group of related pieces of art that you can use, as the documentation notes, for "copy continuity." There's a carrier pigeon in two different flight positions and delivering a letter, a collection of mimes with interchangeable heads, torsos, and legs, and so on. The Multi-Graphics are collages or large pictures that have been pregrouped into smaller segments. The neighborhood scene is delightful, and the food and travel collages are easy to break down into separate components if you have *Illustrator*. For "miscellaneous pictures," there is Portfolio, which has such disparate images as the Statue of Liberty, a hot air balloon, a pair of joggers, and party balloons. The Symbols collection is subdivided into the general categories of People, Going Places, and Things. These pieces of artwork are smaller than the others and done in stark black and white. Then, there is a group of "display framers," pictures with spaces for you to put your message: a plane trailing a banner, a mouse in a sandwich board, and others.

Images with Impact doesn't keep to one particular style in its art. Some of the images are cartoonish (without being cutesy), while others are more art deco. The thing that is consistent throughout the whole package is the high quality. *Images with Impact* is clip art the way it should be.

3G Graphics shows attention to detail not only in its graphics concepts and designs, but in its presentation. The manual, despite a few grammatical slips, is the best of any reviewed for this article. It has general and specific information about using PostScript graphics with LaserWriters and Linotronics. It has a large section on "ideas," and the section that shows the art on the disk is straightforward and easy to follow. 3G is also the only publisher to thoughtfully pregroup segments of its art so you can easily lift the rose off the plate, move the megaphone away from the director's chair, and so on.

3G is planning to release a new disk every 6 months; if we're lucky, they'll step up production and get them out more often.

IMAGE CLUB

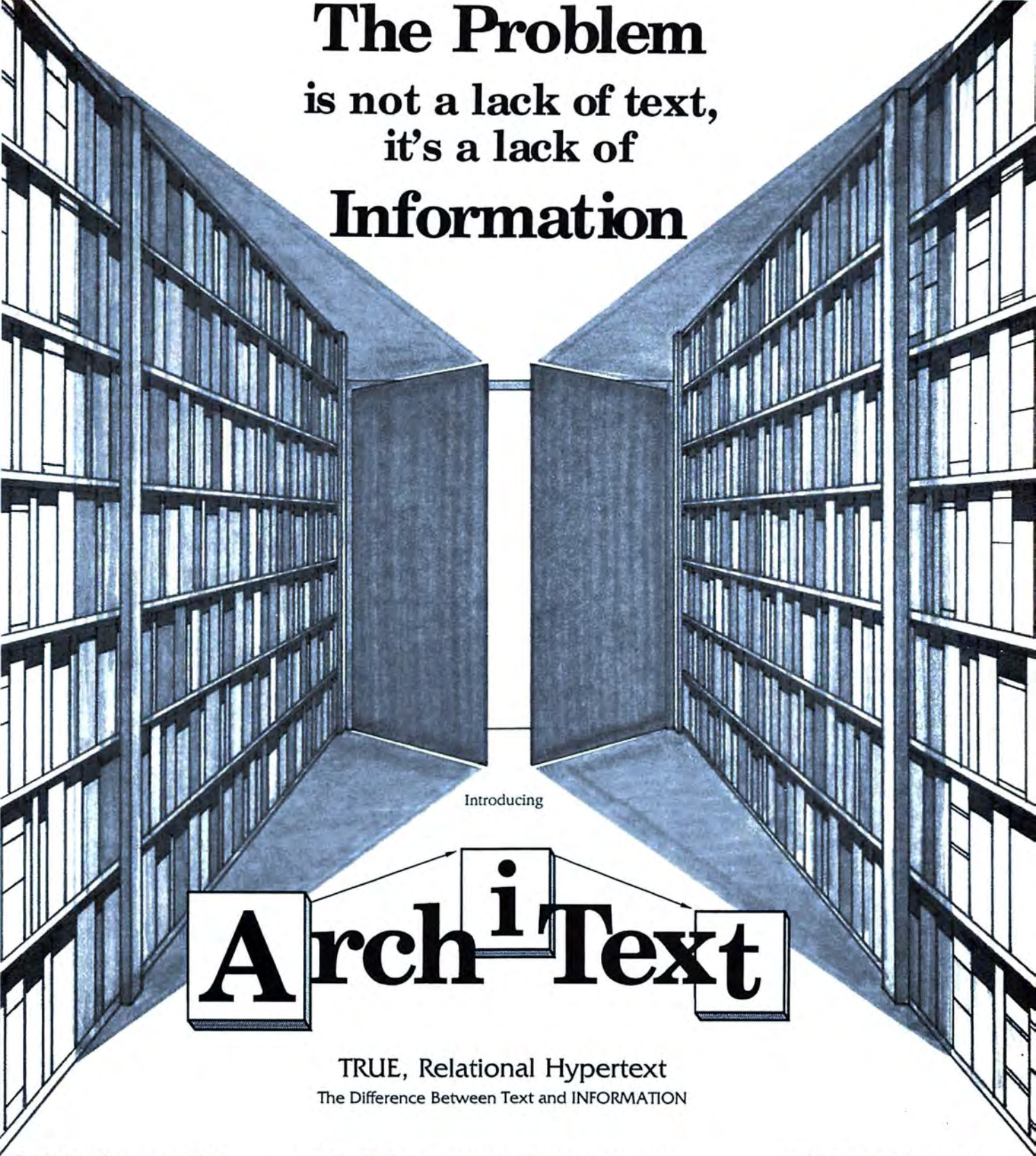
Image Club Graphics has such an overwhelming collection of EPS art available that the entire 1988 collection of eight volumes is available on a CD-ROM. The volumes are also available on regular disks.

While the volume of art is impressive, the manual is not. It used to be

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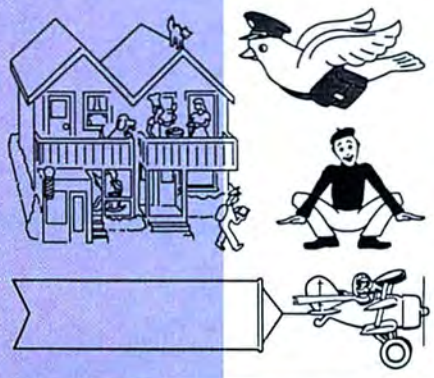
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You Gotta Have Art



The good (border), the bad (ribbon), and the ugly (Santa detail) from *ArtWare*'s collections.



3G Graphics' University (good ol' G.U.). The house is a detail from a full-page neighborhood scene; the pigeon and mime are parts of a graphic series; the plane is one of the "display framers" in which you can put your message.

axiomatic that manuals written by programmers would barely approach English. Judging by all the manuals for EPS art, and Image Club's in particular, we're going to have to reword the axiom to include graphic artists.

The catalog, which shows all the art for all eight of the Image Club volumes, is set in the most difficult-to-read font I've ever seen. The text is riddled with grammatical and spelling errors and typos galore. Macintosh and general computer terms are used incorrectly (*clip board*, *out put*). Inattention to detail in a software manual makes me nervous.

The presentation of the art in the catalog is nice from a graphics point of view: a nice layout, sometimes with overlapping images — but it's uncomfortable when you just want to know what's where on your disks. The disk labels don't help, either, since they're all the same: "Volume 4, three-disk set" is not enough.

THE BIG PUZZLE

Finally, it's hard to figure out what type of art is being offered and what is the name of the series. Distilled, the information is:

Image Club Graphics is the company. *Digit-Art* or *Digit-Art Laser-Graphics* is the name of the floppy disk series.

ArtRoom is the name of the CD-ROM disc that contains all the graphics on the eight *Digit-Art* volumes.

Volumes 1 and 2 are available in EPS or PICT format.

Directory

Artware Systems
3741 Benson Drive
Raleigh, NC 27609
(919) 872-6511
ArtWare is a 3-volume package: *Assortment*, $69.95; *Borders*, $129.00; and *Equestrian*, $89.95. *Borders* is the best of the package. Average mouse rating: 2½.

Image Club Graphics
2918 19th Street NE, Suite 206
Calgary, Alberta
Canada T2E 7A2
(403) 250-1969
Digit-Art, a 7-volume package, includes: *Volumes 1-3, Miscellaneous*, $99.00 each; *Volumes 4-5, People*, $99.00 each; *Volume 6, Business/Industry*, $99.00; and *Volume 7, Maps;* $99.00. There's no standout volume; all are good. Average mouse rating: 5.

Olduvai
7520 Red Road, Suite A
So. Miami, FL 33143
(305) 665-4665
Post Art I, $69.95, is the first of two "art galleries." *Post Art II*, $99.95, in stores now, was not available for this review. While you get a lot of art for your money with *Post Art I*, the overall value of the package is poor. Average mouse rating: 1.

Studio Advertising Art
P.O. Box 18432-52
Las Vegas, NV 89114
(702) 641-7041
Click & Clip offers seasonal graphics packages. *Spring '88* and *Winter '87*, $39.95 each, are the first two of what will be quarterly editions. *Spring '88* is the best so far. Average mouse rating: 2½.

T/Maker Company
1973 Landings Drive
Mountain View, CA 94043
(415) 962-0195
EPS Illustrations, $129.95, is a potpourri of illustrations with no real focus. As an art package, this one is not very useful. Average mouse rating: 3.

3G Graphics
11410 NE 124th Street
Suite 6155
Kirkland, WA 98034
(800) 456-0234 (Information)
(206) 823-8198 (Orders)
Images With Impact, $99.95, is the best overall clip art package. It is well-organized, and the quality of the artwork is wonderful. Average mouse rating: 5.

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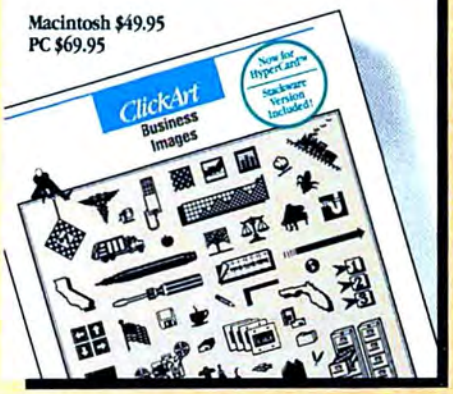
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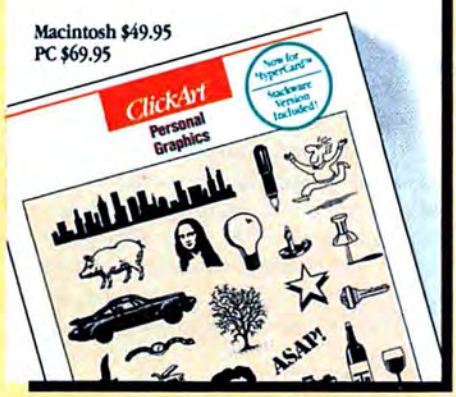


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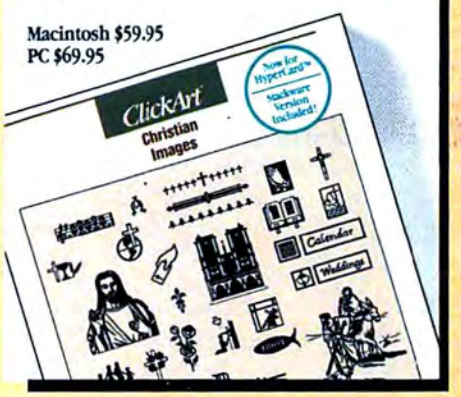
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T/Maker. **Send for FREE Catalog!**

Volumes 3 – 7 are in EPS format. Volume 8 is PICT format. (And therefore is not included in the roundup chart.) The images that Image Club provides are great; the word "artsy" comes to mind when flipping through the catalog. Image Club clip art and 3G Graphics' offering are the only disks that look like "real" clip art — the traditional paper kind.

The first three volumes of miscellaneous art are a terrific collection of all sorts of items: borders and announcement frills, symbols and flourishes, sports and holidays — a varied and useful collection of images. The People volumes (4 and 5) are filled with cartoonish characters in all sorts of situations.

The art shows people not only in situations (sitting at a desk, looking at a newspaper) but also expressing abstract feelings: nervousness, surprise, and so on. Volume 6 is Business and Industry; Volume 7 is maps of the world in general and the United States in particular.

Scattered throughout the catalog are occasional hints about how to use the artwork. Unfortunately, enough misspellings and mistakes are included to keep you wincing.

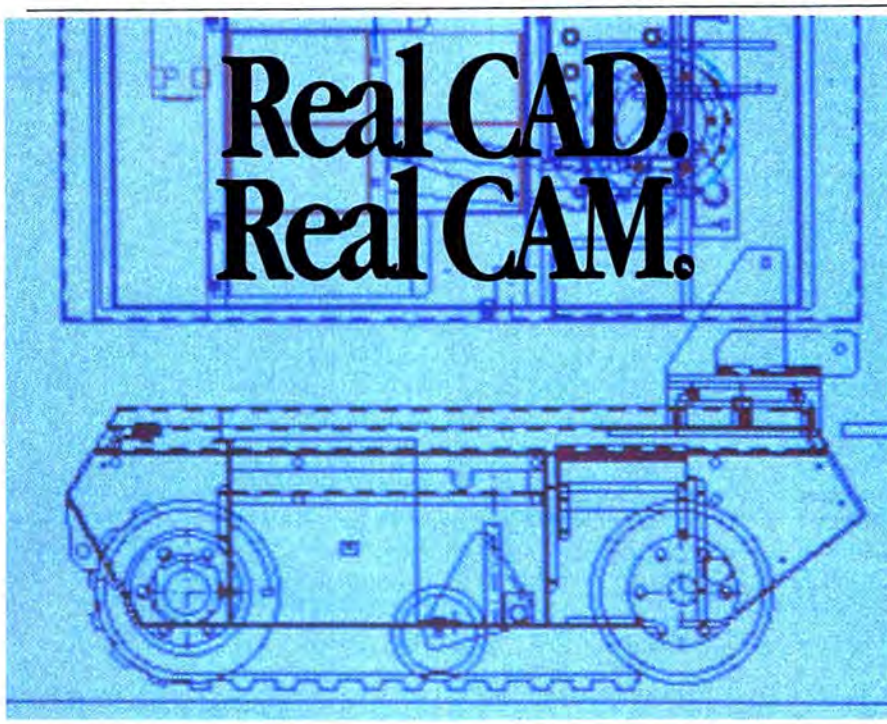
THE ROUNDUP

Clip art doesn't lend itself to *MacUser*'s usual report card ratings. Online help? Follows the Mac interface? So, instead, we've got a chart that hits the important aspects of clip art.

First, there's quantity: not necessarily how many disks in the collection, or how many documents on a disk, but how much art for the money. T/Maker's *Illustrations,* for instance, rates low in this category because so many of its figures are repeats. Then comes quality, a somewhat subjective category. To be fair, I did run these collections by a number of people, three of whom teach graphic arts. We all agreed as to which was the good art and which was not. Then, there's usefulness. Again, a slightly subjective category that I double-checked with my panel of experts and innocent bystanders. A high rating in this category means all, or a majority, of the art in the package would be useful to the consumer. A really disjointed collection of images is not too useful.

ArtWare's Equestrian collection might have rated high in usefulness for anyone who specifically needs art in that category, but it still got a low rating because so little of it was good enough to be useful. Consumer Value is a complex, probably unscientific, relationship of price, quantity, quality, and usefulness. Finally, there's the "mouse rating," which is an average of the ratings for quantity, quality, usefulness, and consumer value.

SHARON ZARDETTO AKER IS A CONTRIBUTING EDITOR FOR MACUSER AND THINKS CARTOONS ARE A PRETTY IMPORTANT BUSINESS TOO.



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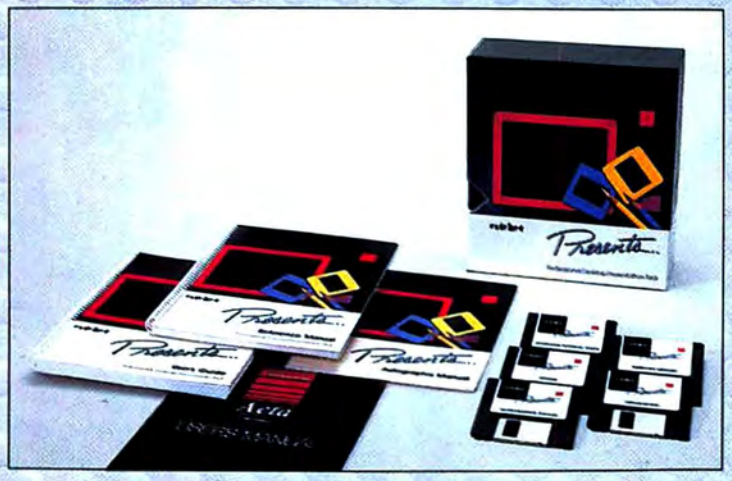
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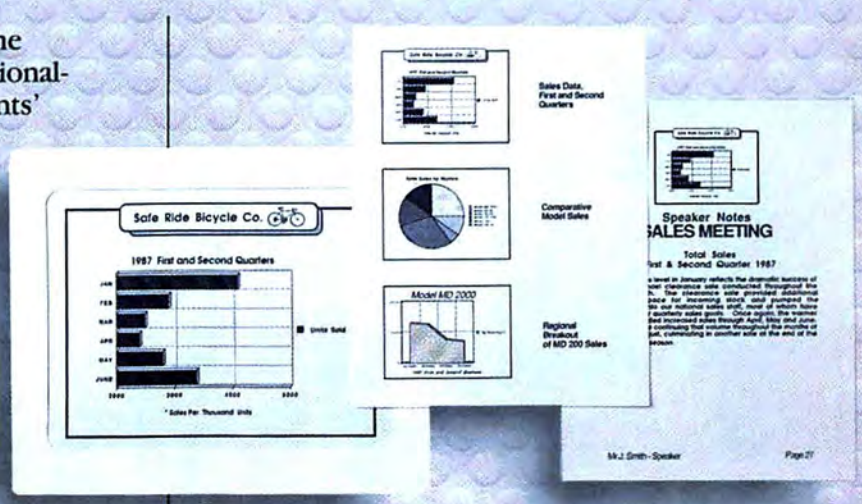
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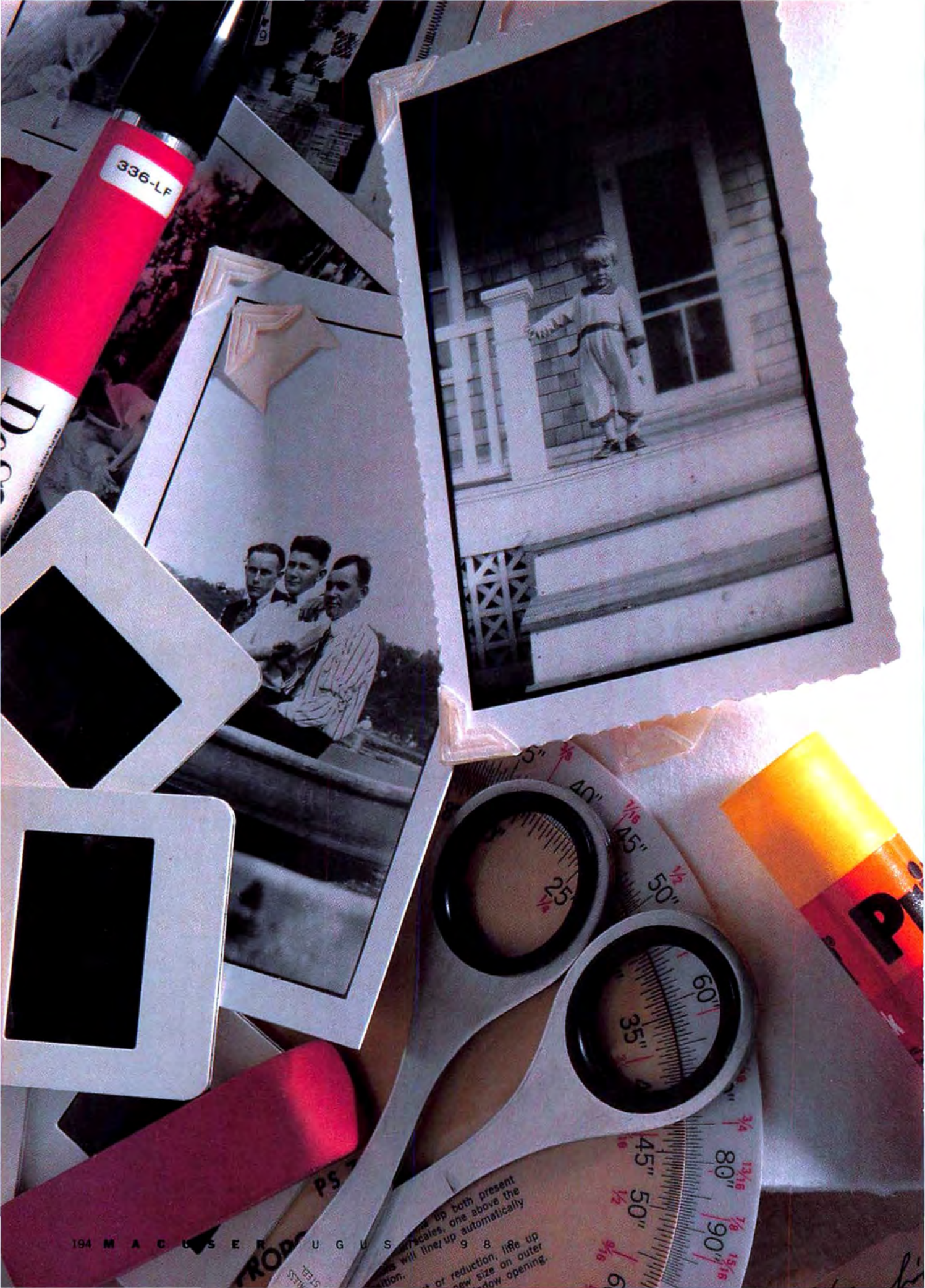
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That often necessary "third hand" is as near as the Apple menu. Your own desktop-publishing assistants are only a DA away.

Desktop publishing is not a one-step process. The function of a layout program, such as *PageMaker* or *Ready, Set, Go!*, is not so much to create documents as to assemble their parts into a cohesive whole.

But getting all the pieces together can be tough. Halfway through a project, you realize a page lacks visual interest or an image needs alteration. Somehow, the parts always arrive in the wrong order or in the wrong form. You can find a solution in your Mac's Apple menu, though. I'm talking about desk accessories, of course.

Originally, DAs were simple adjuncts to Mac applications. Today, they often serve as the gateway to files created by other programs and can encompass all the power of full-blown applications.

For desktop publishing, DAs facilitate graphics management, image editing, and file handling. A good combination of DAs streamlines the process of document assembly.

PICKING SCRAPS

The prototype of the art-management desk accessory is Apple's Scrapbook. Bundled with every Mac, it lets

BY CARLOS DOMINGO MARTINEZ



GARY BUSS

All in a DA's Work



Scrapbooks are great for graphics you use all the time, such as recurring design elements, but for general image storage, they're limited.

you cut or copy graphics from an application and store them in a file in the System folder. The Scrapbook works well and has one major advantage over all the others — you already have it.

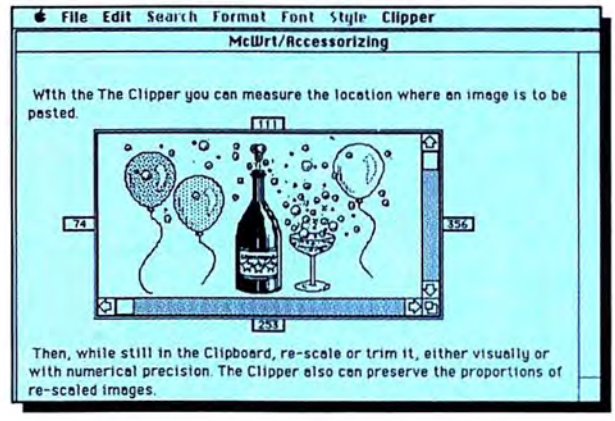
Great improvements to the Scrapbook, however, are *SmartScrap* and *The Clipper,* two DAs from Solutions International. *SmartScrap* creates and accesses multiple Scrapbooks, so you can use a graphic regardless of its location. You view images in a scrollable and resizable window, and a selection rectangle is available. Because each Scrapbook must have a unique name in *SmartScrap,* you can organize graphics according to categories. *SmartScrap*'s Table of Contents (minipictures of an entire Scrapbook) is a nice feature that certainly beats page-by-page browsing. Its only drawback is the length of time required to compose large tables.

Scrapbook images (like anything cut or copied on the Mac) travel through the Clipboard. With *The Clipper* you can measure the location where an image is to be pasted. Then, while still in the Clipboard, you can rescale or trim it, either visually or with numerical precision. *The Clipper* also preserves the proportions of rescaled images.

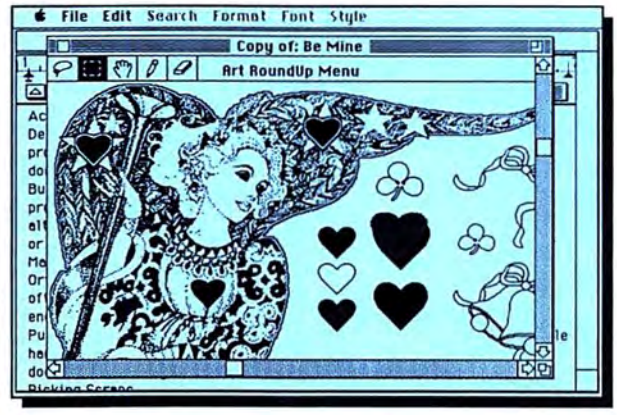
The Clipper isn't limited to use solely with *SmartScrap.* You can install it separately and use it with other programs or DAs. Having *SmartScrap* installed, however, can help you circumvent applications that "take over" the Clipboard, so it pays to use them both.

ROUNDUP TIME

Scrapbooks are great for graphics you use all the time, such as recurring design elements, but for general image storage, they are limited. And a Scrapbook works only with its own files. If you have a lot of Paint format clip art (and who doesn't?), what you need is a way of viewing and selecting from multiple disks. *Art RoundUp,* a DA from Dubl-Click Software, does exactly that.



The Clipper **trims or scales those less-than-perfect *SmartScrap* pictures to fit the space available.**



As well as providing access to Paint format graphics, *Art RoundUp* **(from the *WetPaint* ClipArt Collection) has tools for simple image-editing tasks.**

GARY BUSS

Packaged with the *WetPaint* Clip-Art Collection, *Art RoundUp* lets you open Paint files from any disk. The graphic is displayed on an operable window with marquee, lasso, eraser, and grabber tools. Selections made with the marquee may be flipped or inverted. The eraser lets you delete sections of the image while in *Art RoundUp* without affecting the original graphic. *Art RoundUp* works well, but it lacks any indexing capabilities and works only with Paint files.

Although not an art-management DA in the strict sense, *Pattern Mover* — also from the *WetPaint* collection — deserves mention. Similar in operation to *Font/DA Mover, Pattern Mover* transfers patterns from one application to another. This useful DA spares you the trouble of recreating a custom pattern for use with another program.

A GALLERY OF ART

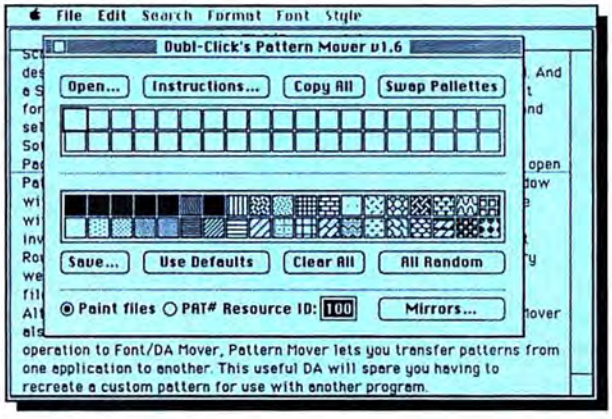
If you need to organize your graphics and have files of images in formats other than Paint, consider *Curator,* also from Solutions International. *Curator* (which is both an application and a DA) indexes collections of images by building a catalog and constructing minipictures called Thumbnails. Further, each image has keywords associated with it. Once images have been cataloged, *Curator* searches for graphics by name or by keyword and displays the entire contents of a collection either by name or by Thumbnail. You view selected images in full-featured windows, and a selection marquee is available.

Although the DA version of *Curator* is the equal of the application, you won't want to build catalogs from it. Creating Thumbnails is time-consuming and better done with the faster *Curator's Assistant* utility. With *MultiFinder,* you can compile large catalogs in the background.

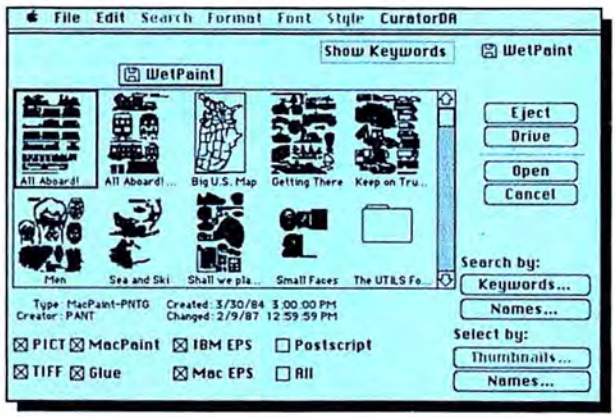
A major feature of *Curator* is its ability to read seven different file formats — *MacPaint,* PICT (object



Curator indexes collections of images by building a catalog and constructing minipictures called Thumbnails.



***Pattern Mover,* also from *WetPaint,* liberates custom patterns from their original applications.**



Graphics cataloged by *Curator* can be selected by name or by miniature images called Thumbnails. *Curator* reads and writes seven graphics languages.



Once you've created Libraries, *PB/Retriever* lets you access them easily from within other applications.

graphics), TIFF (Tagged Image File Format), PostScript Text, Encapsulated PostScript formats for both the Mac (EPSF) and IBM (EPSP), and Solutions International's own *Glue* format. Not only can *Curator* catalog images in all these formats, it can also translate from one to another. Simply open the original file and save it in the target format. Of course, not everything translates smoothly. Some formats simply don't have the level of information required by others. Still, for many users, this alone may be worth the price of admission to *Curator*'s gallery.

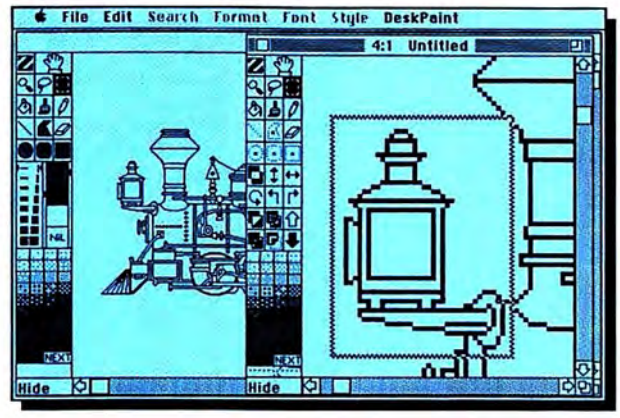
PICTURE THIS

PictureBase, from Symmetry Corporation, approaches image cataloging differently. *PB/Retriever* is its companion DA. *PictureBase* organizes images in its own Libraries, which are formats containing miniatures of each image and Info pages storing keywords and user-supplied data about the graphic. *PictureBase* reads only Paint and PICT files. If your images are stored in other formats, you must first convert them to one of these standards. A utility for converting Scrapbook files is included. (The *PictureBase* engine is used to organize Image Club's huge library of clip art on CD-ROM.)

Once you've created Libraries, *PB/Retriever* lets you access them easily from within other applications. A Catalog Display lists all the Libraries on a disk or folder, and *PB/Retriever* searches through them for character-string matches. When it finds a match, the image appears in the Picture Display, which contains all the images turned up by the search. Although the Picture Display is scrollable, it's not resizable. The Info page for each image is available at the touch of a button. You can copy entire images, or portions, to the Clipboard for pasting into a document and rescale them to 50%, 25%, or 12.5% of normal. *PB/Retriev-*

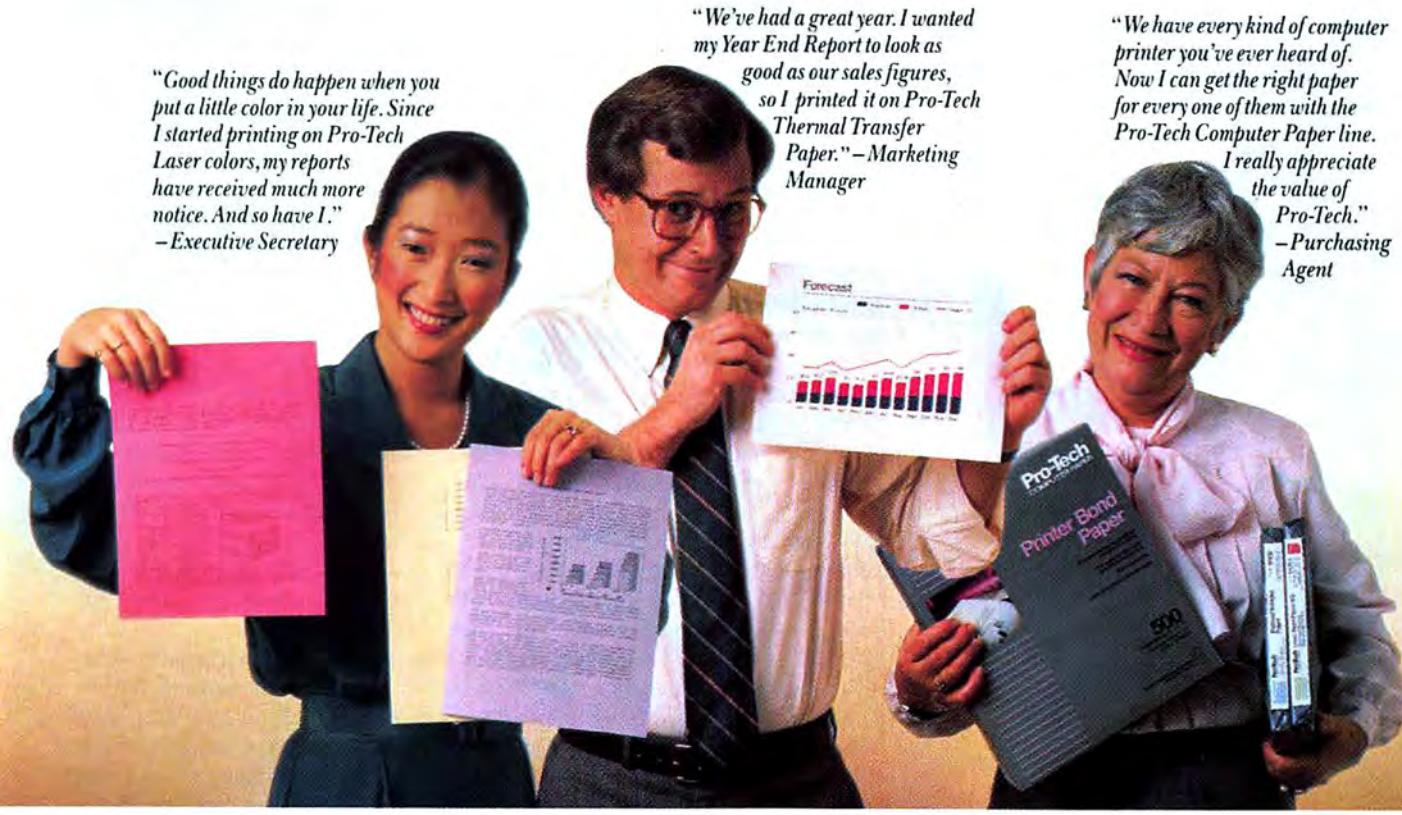


***PB/Retriever* looks in every Library in a volume for images with matching keywords.**



***DeskPaint* supports multiple windows. On the right is the magnified image.**

GARY BUSS



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D*eskPaint* has a built-in Browse feature that can also pinch-hit as a slide-show facility.

er is, however, limited to working only with *PictureBase* Libraries. (Clip art is often available in this form.)

EDITING IN PAINT

Once you've located a graphic, you may discover it needs editing before you drop it into a page-layout document. Although you can do some preliminary alterations during copying and pasting, serious revisions require more.

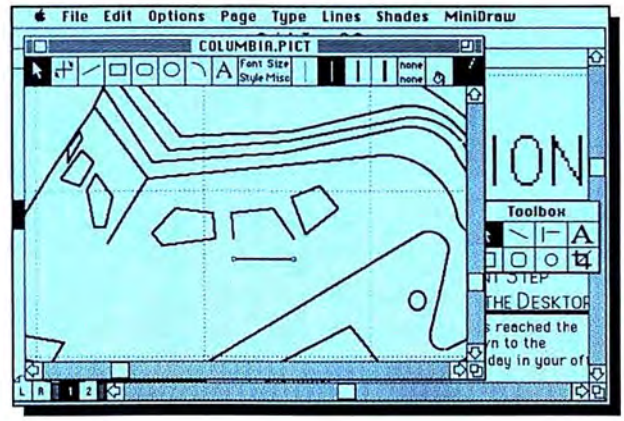
DeskPaint, from Zedcor, is a DA with most of the power of a full-featured Paint application. In addition to Paint files, *DeskPaint* reads and writes TIFF files. TIFF images are edited at their true resolution. *DeskPaint* can display information about the resolution and size of each image, and the same dialog box lets you specify these figures for new images.

DeskPaint's command center is a context-sensitive tool and pattern palette. In addition to the familiar Paint tools, you can specify pen points and eraser sizes, and you can toggle through five pattern sets. A Zoom tool magnifies the image by 16:1 or reduces it by 1:16. For reference during magnification, a small, normal-size image appears beneath the tool palette.

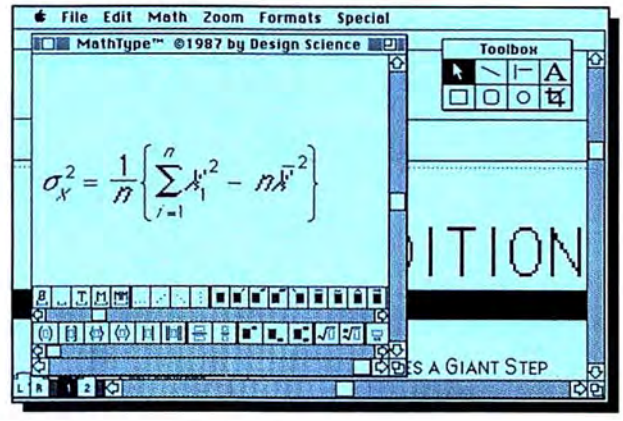
You can flip, invert, or rotate selections freely in increments from as small as 1.41° to 90° in either direction. Proportional, freehand, and fixed 50% and 200% scaling is possible, and a LaserScale option (which preserves resolution for laser printing) is available. You can apply graphic modes to marquee selections or the entire image.

Completing the package, *DeskPaint* has a built-in Browse feature that can also pinch-hit as a slide-show facility. SCAN lets you examine Paint and TIFF format images; SCAN SCRAP lets you view Scrapbooks. Install the DeskPaint2 and DeskPaint3 files and multiple windows are supported.

DeskPaint behaves a little differently from other Paint programs. For ex-



You wouldn't want to design the Space Shuttle with *MiniDraw,* but you could use it for small repairs.



***MathType* is an "equation processor" that constructs mathematical symbols for pasting into technical documents.**

GARY BUSS

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QuarkXPress™, the complete electronic design and production environment, provides all of the resources you need to get the job done. Full featured word processing, powerful graphics editing and global search & replace functions are just a few of its exceptional features. And while QuarkXPress is already recognized for its superb typographic and layout capabilities, these convenient tools make Version 2.0 a pleasure to use. MacUser magazine thought so when it awarded QuarkXPress its highest rating for desktop publishing software.

But for all of its capabilities, QuarkXPress is remarkably easy to learn and to use... which means that you'll be able to take advantage of its power quickly. And now, Version 2.0 has an expanded palette of new features, such as image manipulation, style sheets and advanced color features.

To find out how QuarkXPress 2.0 can make your computer your best creative resource, visit your authorized Quark dealer or call 1-800-356-9363.

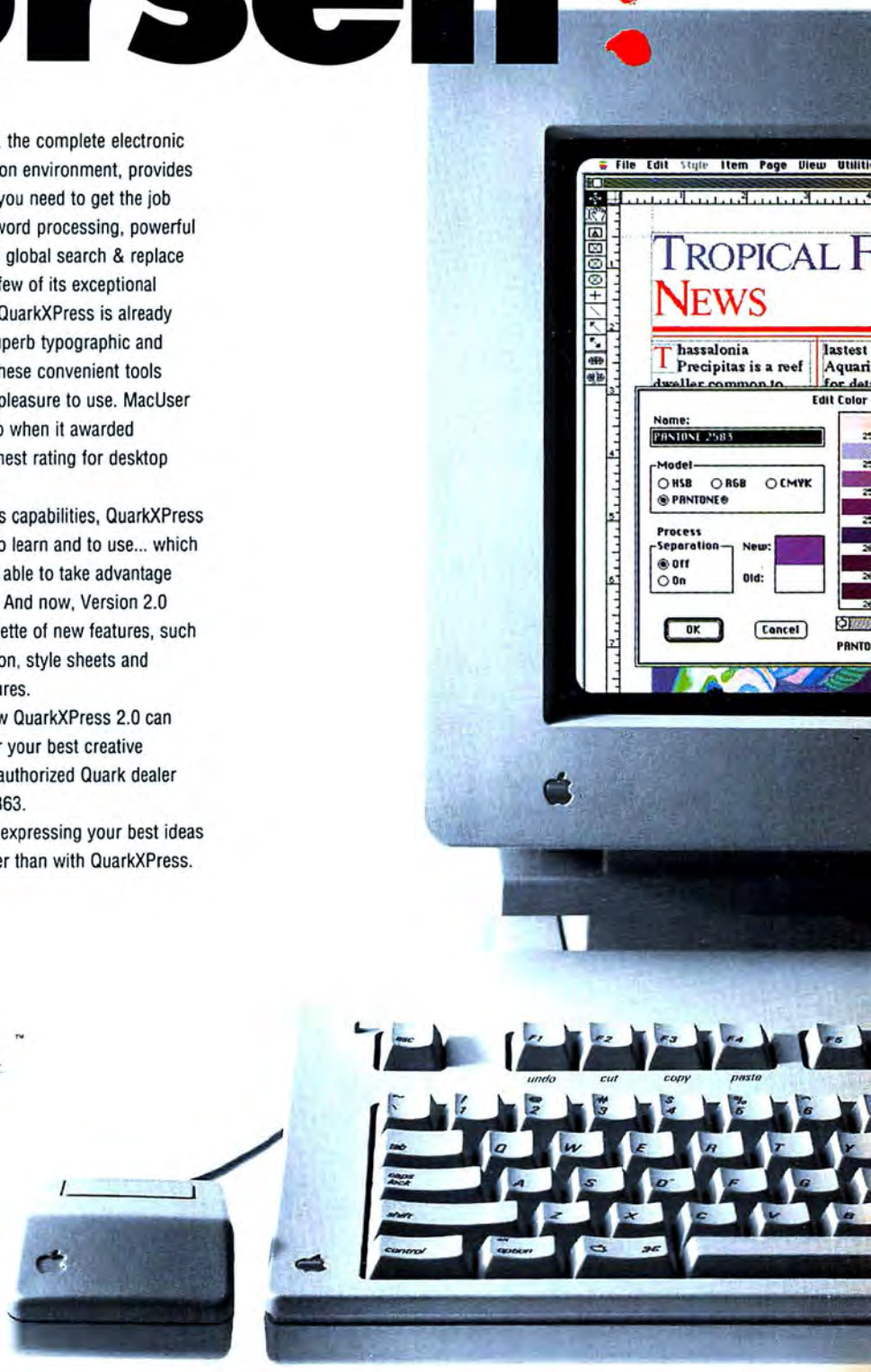
You'll see that expressing your best ideas has never been easier than with QuarkXPress.



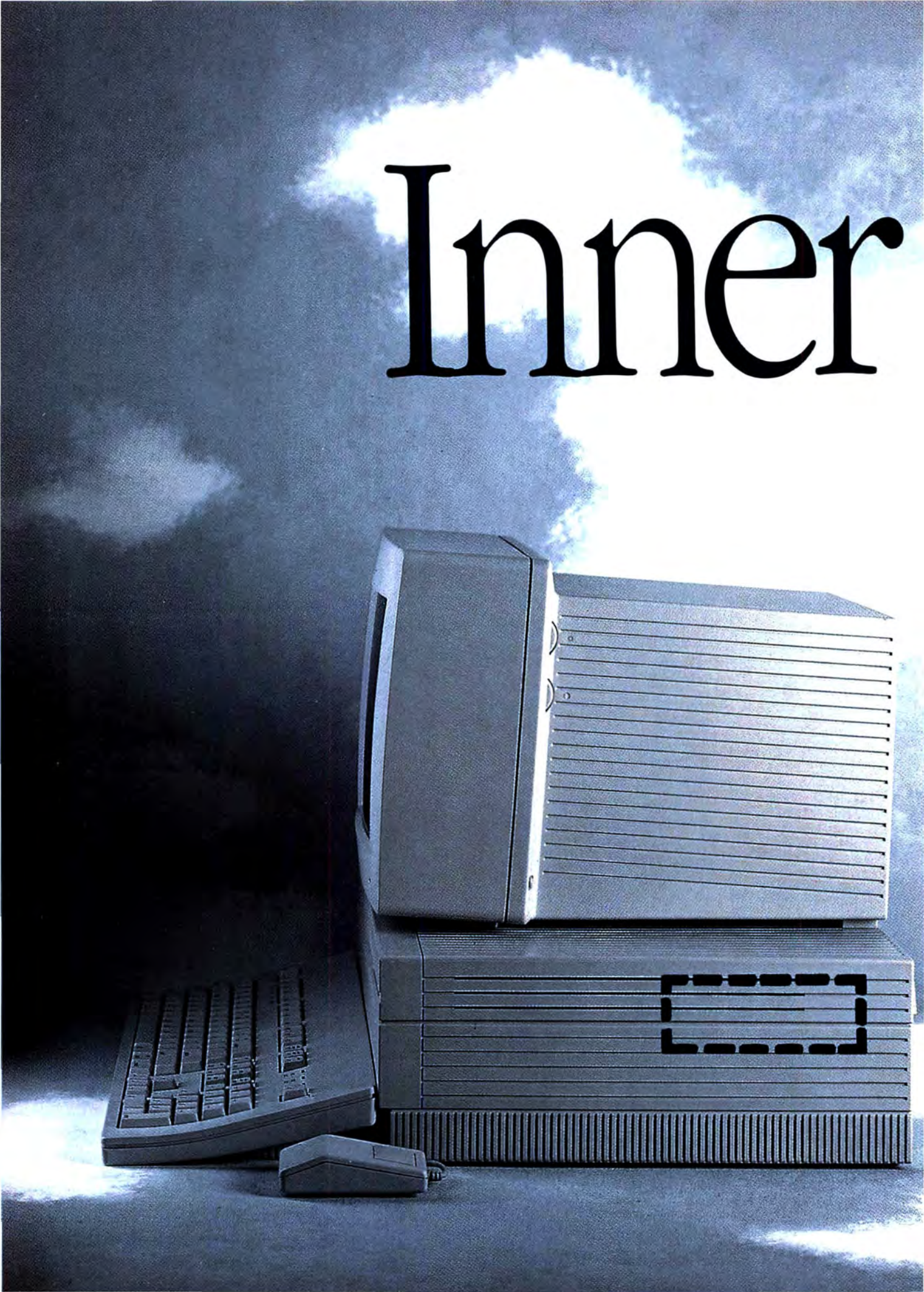
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M*iniDraw,* an object-oriented drawing DA, is reminiscent of what desk accessories were originally: small, simple, and useful.

ample, it remembers the pen and pattern setting for each tool from the last time you used it, so you must be careful to reset these controls every time you switch implements.

When I reviewed *DeskPaint,* version 1.0 (see "Quick Clicks," March '88), I was disappointed by its tendency to blink with every mouse click. Version 1.02 has this quirk under much better control. Now, unless the grid is turned on, it's unnoticeable. *DeskPaint* is definitely useful for those occasional touch-up jobs, but you may be tempted to use it more often than that, too.

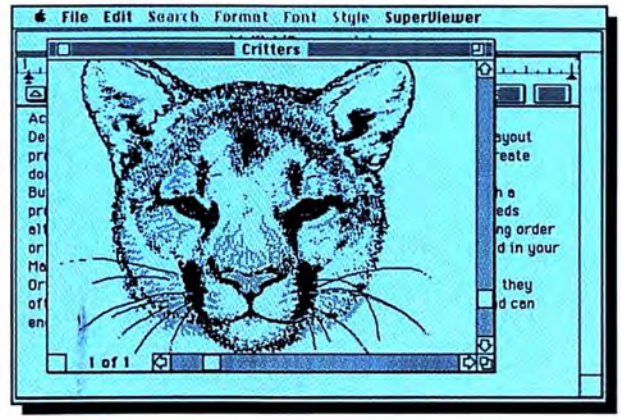
EDITING IN DRAW

MiniDraw, an object-oriented drawing DA, is reminiscent of what desk accessories were originally: small, simple, and useful. Published by a company you've probably never heard of (Software for Recognition Technologies — catchy, eh?), *MiniDraw* doesn't try to do everything. In fact, to use it is to think of things you would like to see in the next release. But what it does, it does quite well.

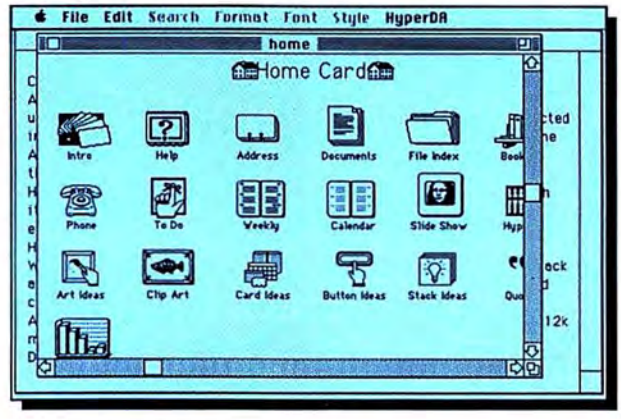
MiniDraw's environment is very similar to *MacDraw*'s. A tool palette across the top of its window holds the standard line, arc, text, and shape tools. You select text functions, mode effects, line weights, and patterns in scrollable or pop-up menus right on the palette.

My favorite feature, however, is *MiniDraw*'s implementation of "free" rotation, which lets you rotate lines freely around a central pivot with a palette tool. It's slick and precise but, unfortunately, works this way only with lines. Shapes jump only in 90° increments. Like I said, maybe in the next release?

Of course, *MiniDraw* is not without other limitations. UNDO is not universal — for instance, it won't work with SEND TO BACK and BRING TO FRONT. But these are quibbles. *MiniDraw* isn't intended to replace your drafting ap-



SuperViewer, **both an application and a DA, is most valuable as the key to *Glue* documents. As you can see here, however, it accesses Paint files as well.**



***HyperCard*'s Home Card is shown in *HyperDA*'s window. *HyperDA* lets you run stacks as if you were in *HyperCard*'s Browse mode.**

GARY BUSS

plication; it's merely a handy editing tool. *MiniDraw* is charming, unpretentious, and at $39.95 a bargain.

NEW MATH

I'm not a mathematician, but some of my best friends are, so I can appreciate how useful a DA such as *MathType* can be. Of course, you don't have to be a mathematician to find yourself working with equations while composing technical documents. And if you've ever tried to do so, you know how difficult those arcane mathematical symbols are to reproduce. *MathType* easily constructs mathematical equations and pastes them into your documents.

MathType is a kind of "equation construction set" whereby mathematical expressions are built by assembling their components. The program has templates for 60 basic constructs, including fractions, radicals, sums, integrals, and matrices. Templates consist of mathematical symbols and empty "slots" into which you can insert symbols or other templates. You select these from the Symbol and Template Drawers, which are similar to tool palettes but with scroll bars. Click on the desired element and it's reproduced in the composition area. If you enter abbreviations such as *cos* and *log* from the keyboard, *MathType* recognizes them and sets them in the proper font.

As you build, *MathType* displays your equation, automatically sizing and positioning the symbols. If you desire it, however, the program lets you manually override its layout. Among its editing features are alignment, justification, subscripts and superscripts, and modifiers such as primes. The *MathType* window is expandable and scrollable for navigating around large equations.

You can transfer finished equations through the Clipboard to the word-processing or page-layout application of your choice. Or you can save them in a Scrapbook file; this is the only saving option available, however. You can bring equations back from an application document for further editing or to



M*athType* is a kind of "equation construction set" whereby mathematical expressions are built by assembling their components.

The Well-Dressed Mac

Choosing the right accessories is an art fraught with subtleties. Ask any fashion consultant. Selecting accessories for the Mac desktop is almost as enigmatic. The reason is that, like fashion accessories, DAs can sometimes clash.

Desk accessories work in a section of memory reserved for them. Combine one DA and one application and usually you won't have any problems. Clashes can occur, however, when an application and a DA struggle over a section of memory or over control of a command sequence. The issue is further complicated as you add DAs and as DAs get more intricate. Even in an environment as well regulated as the Macintosh, incompatibilities abound. And it's getting worse. Differences in Mac hardware and ROMs don't make it any easier.

Testing every conceivable combination of DAs and applications is impossible. Consequently, you can be running a seemingly stable mix, add one more DA, and have System bombs exploding everywhere. The culprit could be that last DA. Or it could be one of the others. Or it could be the application. Or it could just be the particular mixture.

How do you keep your DAs from clashing? Well, you can't. Not completely, anyway. The only thing you can do is exercise caution. Must I say it again? Back up everything. All the time. No excuses. That way, when the twister hits, you can always get back to Kansas.

When you add an accessory, be especially careful. If you run a particularly complex System configuration, you might even want to test the new mixture while keeping sensitive files isolated. After a few days, you can be reasonably sure that major gremlins are not present and you can relax a bit. But never, ever, ignore Rule No. 1.

Then, after considering how bad it is, consider yourself lucky as well. Your friends in the MS-DOS world of IBM PCs and compatibles have it much worse. There, adding a DA, or TSR (terminate and stay resident) program as they call it, can lead to an adventure as frustrating as dealing with Doug Adams' text adventure *Bureaucracy*.

serve as the starting point of your next creation.

MathType is another combination standalone program and desk accessory. The application must be somewhere on-line for the DA to work. It's not a DA everyone will want or need, but if you need it, you're going to love it.

STICKY FILES

Another useful product is *SuperGlue,* again from Solutions International. (Must be something in the air up in Vermont.) *SuperGlue* is a combination of three ingredients that facilitate pasting the output of one application into another.

The main component of this triad is the *SuperImageSaver,* which resides inside your System folder. Select it in the *Chooser,* and it intercepts the normal Print output of an application and redirects it to disk files. *SuperImageSaver* works just like a printer driver does, but instead, you have the choice of saving your file as Scrapbook, Text, or *Glue.*

Once on disk, the file is available to be pasted or imported into other programs. *SuperViewer* and *SuperViewerDA* let you display, copy from, or print the contents of a *Glue* document (or a standard Paint file). If your *Glue* document encompasses multiple pages, *SuperViewer* creates a Table of Contents (image miniatures) that shows all the pages.

Glue documents have many uses — for example, application files can be

The Players

Art RoundUp
Dubl-Click Software
18201 Gresham Street
Northridge, CA 91325
(818) 349-2758
List Price: $39

CuratorDA
Solutions International
29 Main Street,
P.O. Box 989
Montpelier, VT 05602
(802) 229-9146
List Price: $139.95

DeskPaint 1.02
Zedcor
4500 East Speedway, Suite 22
Tucson, AZ 85712
(800) 482-4567
or (602) 881-8101
List Price: $129.95

HyperDA
Symmetry Corporation
761 East University Drive
Mesa, AZ 85203
(800) 624-2485
or (602) 844-2199
List Price: $69

MathType 1.52
Design Science, Inc
6475-B East Pacific Coast Highway,
Suite 392
Long Beach, CA 90803
(213) 433-0685
List Price: $149.95

MiniDraw 1.0
Software for Recognition Technologies
55 Academy Drive
Rochester, NY 14623
(716) 359-3024
List Price: $39.95

PB/Retriever
Symmetry Corporation
761 East University Drive
Mesa, AZ 85203
(800) 624-2485 or (602) 844-2199
List Price: $69.95

SmartScrap and The Clipper
Solutions International
29 Main Street, P.O. Box 989
Montpelier, VT 05602
(802) 229-9146
List Price: $59.95

SuperGlue
Solutions International
29 Main Street, P.O. Box 989
Montpelier, VT 05602
(802) 229-9146
List Price: $89.95

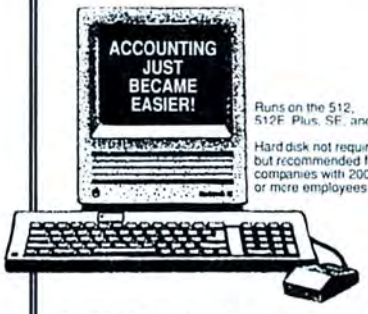
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Runs on the 512, 512E, Plus, SE, and II
Hard disk not required but recommended for companies with 200 or more employees

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exchanged and edited by *Glue* users lacking the original program. The output from any program can be converted into a Paint file. And text can be extracted as standard Text files. All that's necessary is one of the *SuperViewers*.

CARDS WITHOUT THE HYPE

As stackware continues to proliferate, the impact of *HyperCard* is undeniable. The problem can be how to access all the information collected in stacks. *HyperDA*, from Symmetry Corporation (there must be something in the Arizona atmosphere as well), provides a solution. *HyperDA* lets you look through stacks from within other applications.

HyperDA lets you run the stack, using its buttons and navigating through its links, just as if you were in *HyperCard*'s Browse mode. The only exception is that *HyperDA* doesn't support global variables. You can work concurrently with a stack by switching into Window mode, which permits you to resize the *HyperDA* display and go back and forth from the DA to the application. Graphics or text from any card can be transferred through the Clipboard.

And, if you run a shop with a mixture of Macs, *HyperDA* gives your 512K machines access to the stacks created or maintained in larger Macs.

DON'T JUST SIT THERE, ACCESSORIZE

Of course, these are only some of the desk accessories that can provide solutions to desktop-publishing problems. There are entire categories (text editors and outliners to name two) that I haven't the space to touch on here. The truth is, these days, so many DAs are available that it's hard to keep up with all of them. Desk accessories can truly enhance and improve the application you work with every day. The right combination can be as elegant as pearls with a black dress.

CARLOS DOMINGO MARTINEZ IS A MACUSER CONTRIBUTING EDITOR WHO FILLS HIS DAYS COUNTING THE FEATURES OF VARIOUS MACINTOSH PRODUCTS.



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The Second Ragtime Around



Unlike a lot of Mac programs, *Ragtime* has no PAGE SETUP command under the File menu; it leaves the size of your document pages entirely up to you.

EASY TO BE HARD COPY

As with any Mac document, you should select the printer you will eventually use *before* opening and creating your document. That way, the proper parameters will be written to your file.

Unlike a lot of Mac programs, *Ragtime* has no PAGE SETUP command under the File menu; it leaves the size of your document pages entirely up to you. You specify the size you want in the dialog box that appears when you choose the PAGE SIZE command from the File menu. The program actually uses two different commands to set up a document — PAGE SIZE and PAPER FORMAT. PAGE SIZE refers to the actual size of the pages within your document, and PAPER FORMAT refers to the actual size of the paper your printer is using.

In the Paper Format selection screen are two buttons for Standard Formats and Special Formats. Clicking either button will bring up another dialog box.

Choosing Standard Formats brings up a dialog box similar to PAGE SETUP. Special Formats is intended for large-area PostScript printers, such as the Linotronic or the A3 laser printer from Data Products.

Ragtime's mail-merge feature uses PrintCycle and PrintStop expressions in its spreadsheets. The program calculates all spreadsheet frames before printing. When you print, the PrintCycle function is detected and it knows you want to mail-merge. Your data is created in tabular format within the spreadsheet and inserted into your document in the appropriate places, according to the instructions you've given it. The number of subsequent copies is determined by the number of copies you request in the printing dialog box or by the number computed in a PrintStop number function (which forces printing to stop).

The manual is an excellent reference tool, complete with five tutorial lessons that get you up to speed quickly. I'm allergic to manuals but found this one a breeze, almost making up for the absence of on-line help. The lessons provide a solid foundation and ease you into the advanced features a little more gradually than by just diving in. Once you have a basic understanding of the software, using it is a piece of cake.

Ragtime can be extremely functional in any environment. If you're on a limited budget and need as much value as you can get, *Ragtime* can stretch your software dollars. It creates pages that are attractive, smart, and have a lot of personality. And if that sounds like a setup for a blind date, rest assured that a rendezvous with *Ragtime* is a duet you won't regret.

VICKIE LIMPARIS IS PRESIDENT OF CACTUS COMPUTER SERVICE, A CONSULTING FIRM IN PHOENIX, ARIZONA. THE COMPANY SPECIALIZES IN ACCOUNTING AND VERTICAL-MARKET SOLUTIONS ON THE MACINTOSH.

MACUSER RATING

Ragtime ★★★★½

Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ ■ ■ ■
On-Screen Help	None
Performance	■ ■ ■ ■ ■
Support	■ ■ ■ ■ ■
Consumer Value	■ ■ ■ ■ ■

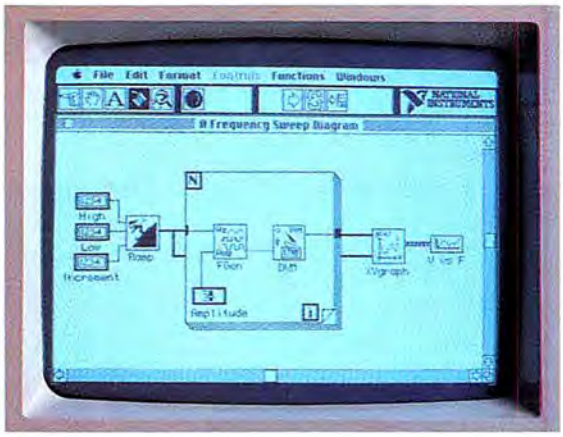
Comments: *Ragtime* is an extremely friendly and functional page-processing program capable of creating professional-looking pages. **Best Features:** Ease of use; good import utilities; the ability to do word-processing and spreadsheet functions on the same page. **Worst Feature:** No spelling checker yet. **List Price:** $395. Distributed by Orange Micro, Inc., 1400 North Lakeview Avenue, Anaheim, CA 92807; (714) 779-2772. Requires 512K+. Version 2.01 reviewed. Not copy protected.

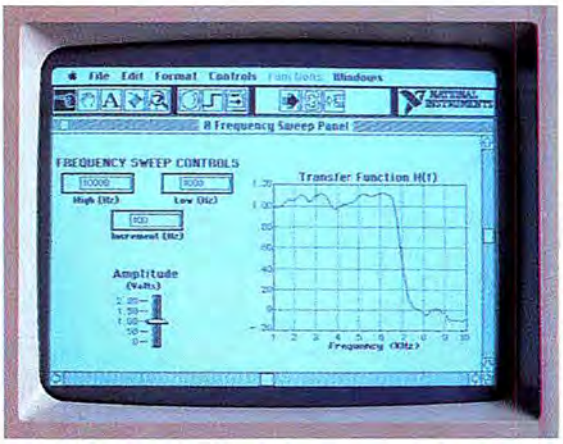
Under New Management?

At press time, Orange Micro was negotiating with Nashoba Systems, publisher of *FileMaker Plus*, over the possible sale of *Ragtime*. Details regarding which company would be responsible for supporting *Ragtime*, should the sale take place, were not available. You can contact Nashoba at 175 Sudbury Road, Concord, MA 01742; (800) 274-0610.

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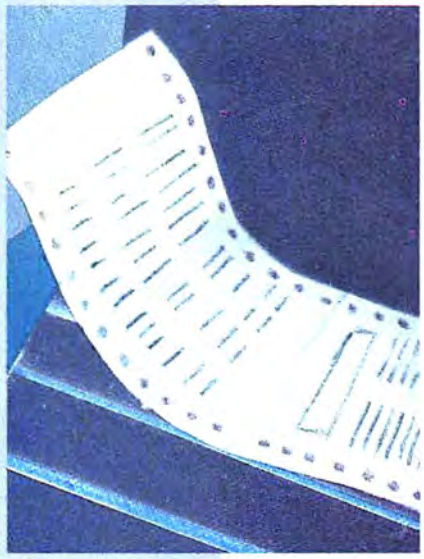
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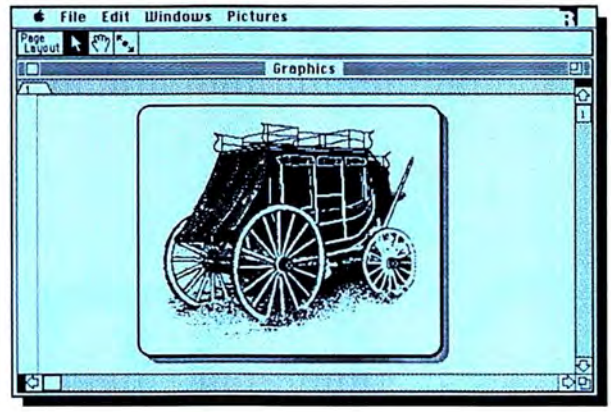
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With the tools available, you can apply some pleasing effects to imported graphics. This example was created by telling *Ragtime* to print the frame's border using a wide line, clicking on the Rounded Corners option, and selecting a shadow effect for the frame. Once the frame was designed, the picture was imported, the frame was disconnected from the picture, and the picture was centered.

The final graphics option is the Color menu in the frame editor. You use this to select the color or gray level of *MacPaint* pictures and of line drawings in FOTO and TIFF formats.

than pictures in *MacPaint* or PICT formats do, increasing both the amount of memory required in your machine and the amount of disk storage space necessary to save your document.

To further reduce the size of your file with these formats, *Ragtime* provides an option to save only the screen representation of the picture. This option yields graphics with a much lower resolution, and you should only use it if storage is a problem or if you are not going to be printing your document on a PostScript printer.

The final option concerning graphics is the Color menu in the frame editor. You use this option to select the color or gray level of *MacPaint* pictures and of line drawings in FOTO and TIFF formats.

Keep in mind that when you print on an ImageWriter II or LQ printer, *Ragtime* will make every attempt to simulate the selected color as closely as possible.

Encore! Encore!

If you've used an earlier version of *Ragtime*, you'll be particularly interested in the new features and commands implemented in Version 2.01:

- The Picture mode has undergone the most in the way of major enhancements and modifications. More imported file formats are supported. You can center pictures in a frame or size them to fit a frame (or make the frame fit the picture). You can also disconnect pictures from the frame for greater control.
- In the word processor, the main additions are kerning and leading. A new blank page is now automatically added when you need one.
- The spreadsheet has many new mathematical functions. You can now place a border around a selected range for emphasis.
- Spreadsheet calculations are faster.
- When generating a form, you can "tear off" a particular page or the entire document.
- You can search for nonprintable characters such as tabs and returns.
- A new ZOOM option lets you magnify by as much as 400%.
- The PREFERENCES command in the Windows menu lets you optimize the automatic-hyphenation algorithm to your choice of languages, including English, German, French, Spanish, Italian, Portuguese, Swedish, Dutch, Norwegian, and Nynorsk. You can also set a minimum length for start and end syllables.
- Frames can be stacked, overlapped, or transparent.
- You can group objects or bring objects to the front (or send them to the back) one layer at a time or all at once.
- Lines can now have arrowheads on them.
- There is a customizable grid that can be turned on or off.
- A new Color menu in the frame editor offers a choice of different fill patterns for frames and lines and defines the gray-level structure.
- More Command-key equivalents have been added.

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At $1999, our Personal LaserPrinter (PLP) costs about $800 less than Apple's LaserWriter® II SC.* But that's the least of many good reasons why you should buy one.

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The PLP is the only laser printer in its category that lets you print in any number of point sizes, even fractionals. The LaserWriter II SC, by contrast, lets you print in any number of point sizes as long as the number is six.

The PLP gives you unlimited freedom in reducing and enlarging documents (critical for applications such as Excel and PageMaker®). The LaserWriter II SC doesn't.

With the PLP, italics are true *italics* and bolds are true **bolds** —because the PLP uses true outline fonts. The LaserWriter II SC doesn't.

All this begs an obvious question: how can we offer so much functionality and still charge less for it?

The answer is software—software that enables your Macintosh to use its own resources to do the processing that would otherwise require costly additional hardware.

But there's another reason the PLP performs better: it has to.

In a market saturated with laser printers, there's no point in offering one that's less functional and more expensive. After all, our competition has that market all sewed up.

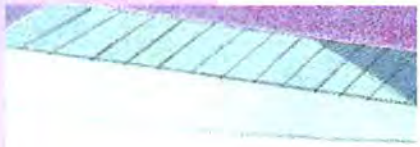
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The Second Ragtime Around





graphs and some of the heavy statistical functions — it does provide everything average users need in a spreadsheet.

FANCY PROJECTIONS

The real difference between this spreadsheet and others on the market is in the total package. *Ragtime* provides 253 rows by 253 columns in which to work.

With the page-layout features available, you can create the best-looking financial projections your company has ever seen.

You can also create several small spreadsheets on a page and link them. *Ragtime* also supports the ability to import text and SYLK files created by other programs, so there's no need for retyping.

You enter text and formulas in the usual manner. Click on a cell to activate it and begin typing. Most arithmetic functions are supported along with quite a few scientific and trigonometric ones.

You can also enter a supplementary formula in each cell to manipulate the evaluation of the main formula, offering greater flexibility in spreadsheet results.

To further enhance the appearance of your worksheet, you can format each cell individually with different fonts, typestyles, and sizes. You can put a border around a certain range of cells to highlight a particular area. Column width and row height are adjustable, and the FONT & STYLE CHANGES feature discussed earlier is also supported in this mode. Additional features include SORT, SEARCH & REPLACE, and multiple open windows.

PICTURE FRAMES

Ragtime's final mode is for graphics manipulation. This is the mode in which Orange Micro has made a great number of changes and improvements over earlier versions of the software.

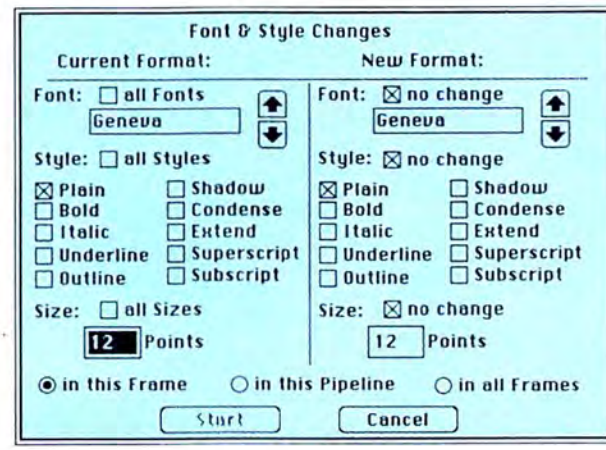
New *Ragtime* lets you insert pictures anywhere within a document and allows you to bring them in directly from a picture file or via the Clipboard.

Although you can't create graphics from scratch, numerous graphics-manipulation options are available. You can choose whether or not a picture is connected to its frame. By disconnecting the two items, changes you make to the size of the frame do not affect the picture in any way, which enables you to show only the portion of the picture you need rather than all of it.

You can also scale pictures to any size you want. Other options include FIT PICTURE TO FRAME, FIT FRAME TO PICTURE, and CENTER PICTURE IN THE FRAME.

To create an instant framed picture, just draw a frame, select PRINT BORDER, give it a shadow, and insert and center your picture.

If disk storage is a problem, you can use CROP PICTURE to delete any portion of your picture that doesn't appear in the frame, thereby reclaiming the disk space that would be used by something that isn't seen in the final output. Pictures in FOTO, TIFF, and EPS formats usually contain a lot more data



The FONT & STYLE CHANGES feature saves time by letting you selectively change your text, transforming font, style, and size parameters from their current values to the values you desire.

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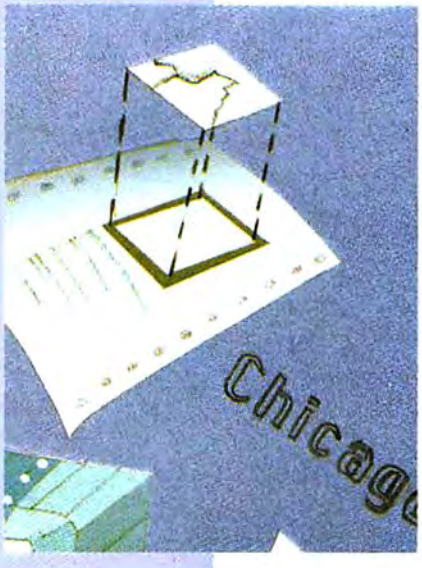
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The Second Ragtime Around



Anyone who has used a spreadsheet before will feel right at home with this one. Although it's not designed to be an *Excel*, it does provide everything average users need.

edges to print.) You can accomplish all these functions with just a few clicks of the mouse.

To further enhance the look of your page, the layout tools include lines in different widths from hairline to quite thick lines with arrow tips and background shading. *Ragtime* also supports various gray levels and color on the Mac II. One useful tool within the layout mode is the Pipeline. Pipelines are used to connect text frames, letting text flow from frame to frame on the same or different pages. This is especially helpful if you're importing a large document from *MacWrite* or *Word*.

CHOOSING YOUR WORDS

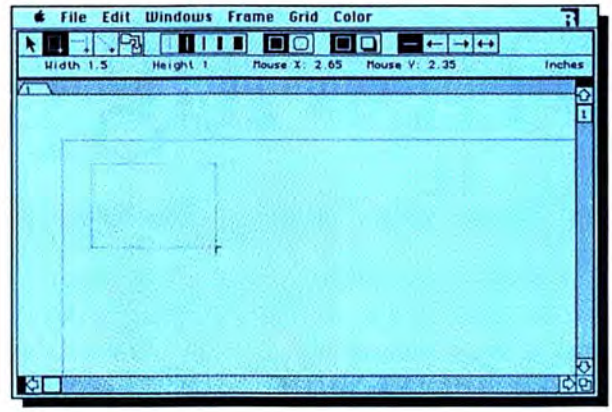
Once you have a frame or two on the page, you're ready for part 2 — the word processor. This part of the program works a lot like *MacWrite* does with a few extras, such as kerning, leading, auto-hyphenation (with a user-definable exceptions list), mail-merge (which works with the spreadsheet), and import and export utilities.

Another feature that's not found in many packages is FONT & STYLE CHANGES. If you're using multiple fonts within your document and want to change all the plain text in Geneva to bold Helvetica, it's no problem. Simply pull down the Windows menu, select FONT & STYLE CHANGES, click on a few boxes, and it's done. Other features include search and replace, the ability to show special characters such as tabs and returns, and support of font sizes from 4 point to virtually any size you want.

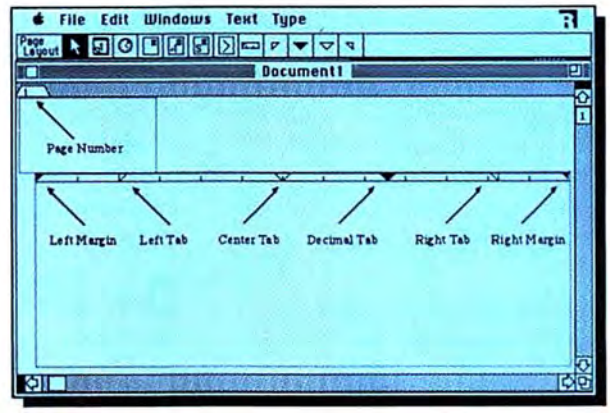
The only important word-processing feature you won't find here is a spelling checker. At this price level and for the kinds of projects you're likely to do with *Ragtime*, a spelling checker is a must. I've been told one will be coming as a free upgrade for registered users when it's ready.

A MODEST SPREAD

Anyone who has used a spreadsheet before will feel right at home with this one. Although it's not designed to be an *Excel* — it doesn't do things such as

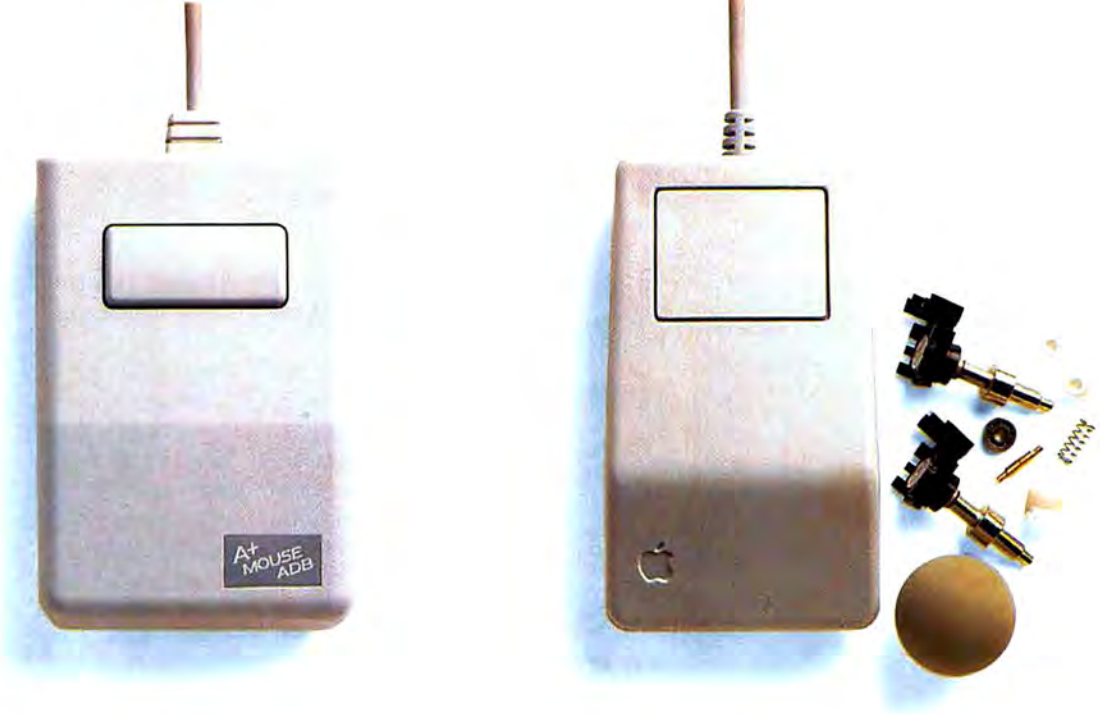


Ragtime **pages are made up of frames that can be nested, overlapped, or transparent. Drawing them is simple, and the tools available facilitate precise measurement and placement on the page.**



The usual word-processing features, such as margins and assorted tabs, are available for formatting text.

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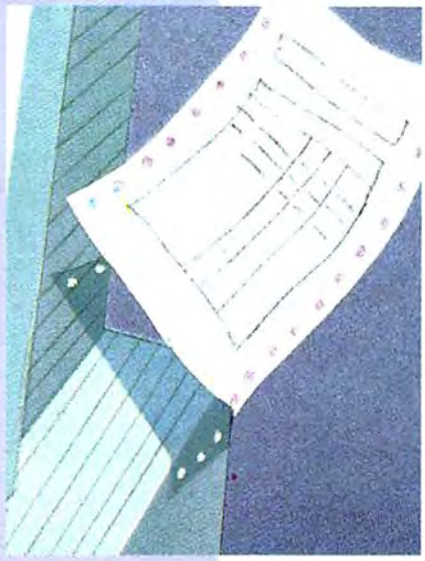
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Ragtime also supports various gray levels and color on the Mac II.

the menu and tool bar what mode you're in. It won't be long before you're going back and forth between modes without even thinking about it.

Below these bars the screen shows one large text frame ready for data entry. You have the option of entering data immediately (by just clicking anywhere in the frame) or of using the page-layout tools discussed below to custom-design your page.

SUITABLE FOR FRAMING

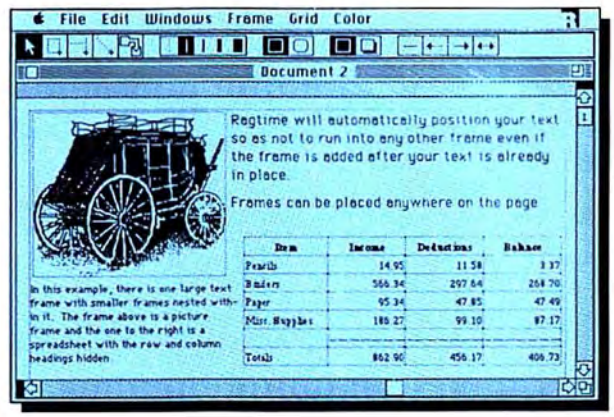
Enter the frame editor and select the Frame icon from the tool bar. You'll notice that the cursor changes from an arrow to a crossbar. As you move your mouse onto the page, you'll see a new bar appear under the tool bar. The information in this bar tells you exactly where your mouse is on the page and the height and width of the frame being drawn. This provides for precise placement of items on your page, which is handy if you're designing an invoice that will eventually be printed on a preprinted form or if you're duplicating an existing document.

Whenever necessary you can also click on any existing frame and, by holding the mouse button down, see the exact dimensions of the frame.

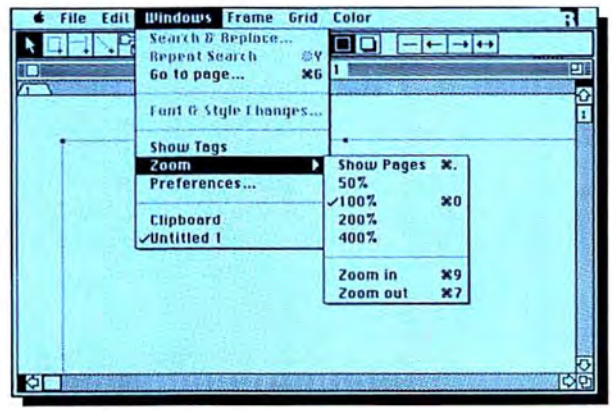
Once your frame is drawn, define it as text (the default), spreadsheet, or picture and it's ready for data input. If you have an idea of how you want the finished product to look, use the ZOOM command in the Windows menu to see the full page. (You can zoom in and out from a 400% enlargement to a fit-to-screen view of an entire page.) Create the necessary frames where they should be on the page, then return to normal view and do the fine-tuning of the precise size and placement of each frame.

YOU'VE BEEN FRAMED

As you draw your frames, a few more options become available. Frames can have square or rounded corners and a shadow effect. You can also decide whether you want the actual frame border to print and, if so, if you want all four sides or just a specific side. (You can select any number of



You can place different types of frames on the same page to create a professional-looking document.



The ZOOM feature lets you go from a full view of the screen to a 400% enlargement.

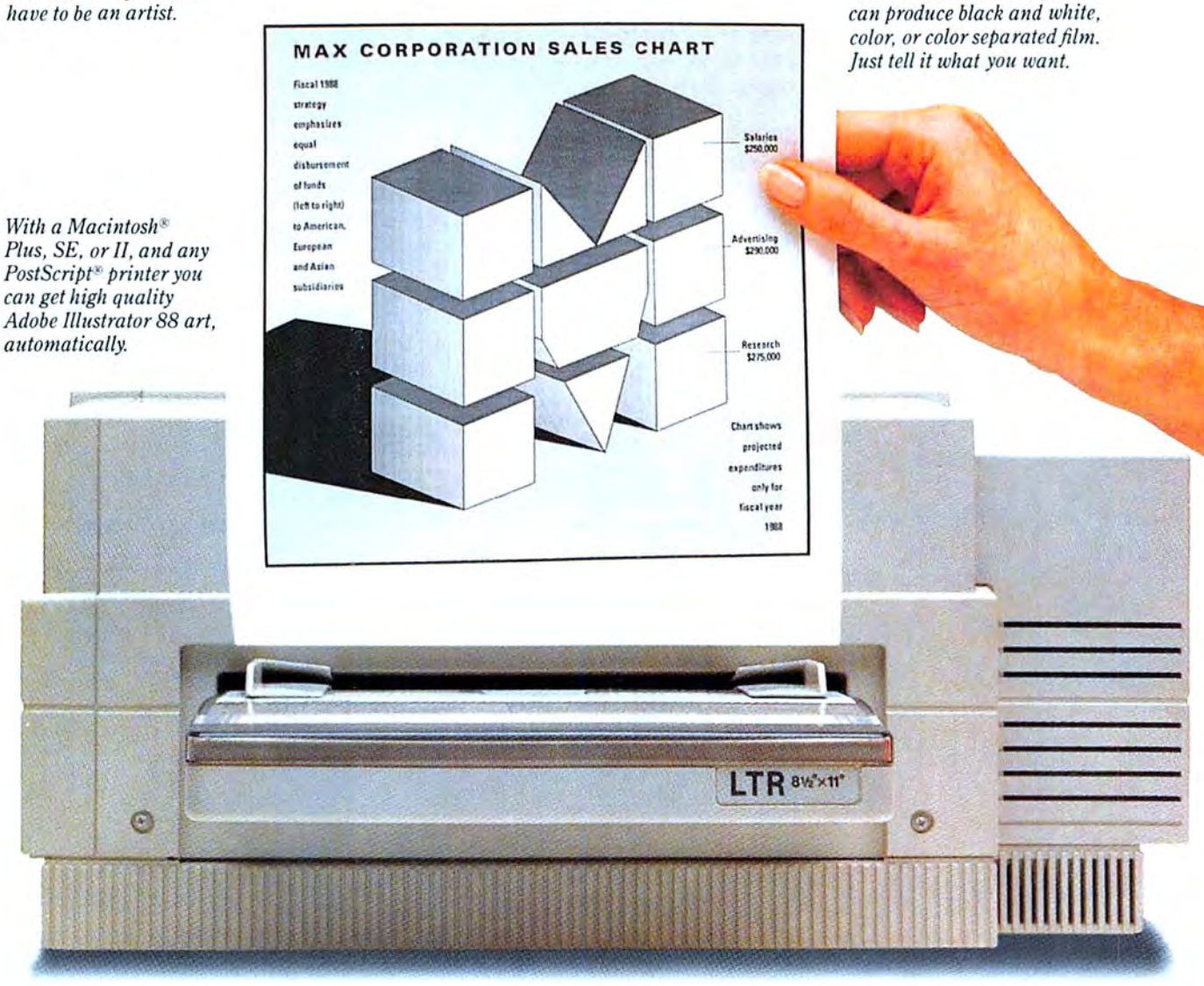
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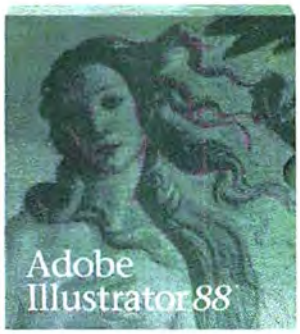


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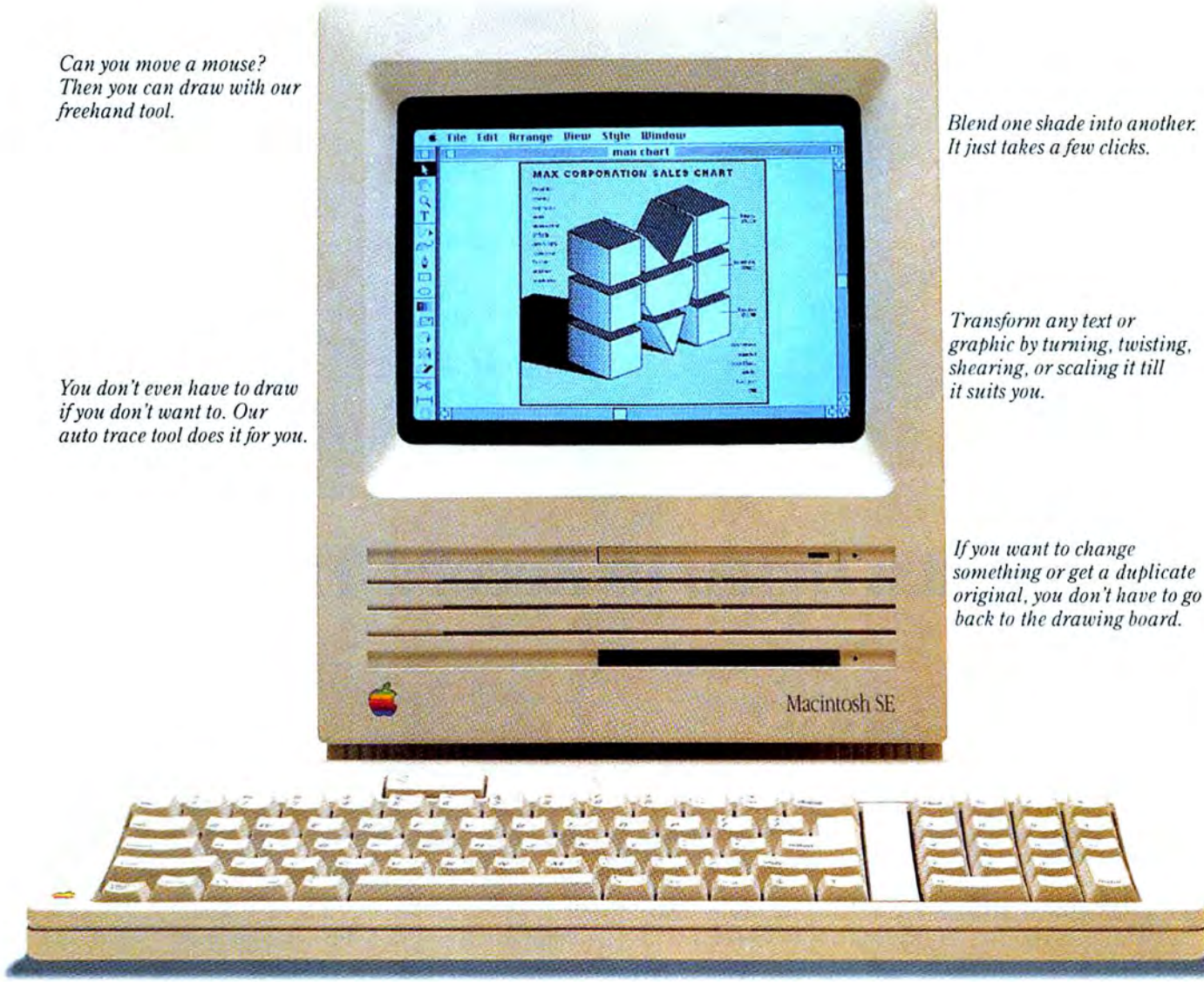
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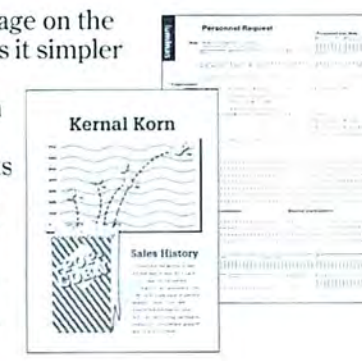
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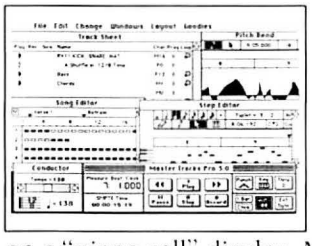
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64 Tracks with Real time or Step-time recording are just the beginning. You'll appreciate transport controls with all the features of a tape recorder, and then some. Like automatic punch-in and out, song pointer and "remote" control. The conductor track lets you graphically change meter, tempo and beat. Master Tracks Pro also gives you independent track looping, 240 beats per quarter-note resolution, and a built-in system exclusive librarian.

Unique Graphic Display for Easy Editing

All MIDI data is graphically displayed – what you see is what you hear. There's no more searching through lists of numbers. With editing commands such as cut, paste, mix and copy, you can visually edit any part of the song and



remove or insert time. Change duration, velocity and channel. And humanize, quantize, strip or transpose. Our Step Editor graphically displays notes over time, so you can easily input new events or edit existing ones on a "piano roll" display. *No* other sequencer is more powerful – or easier to use!

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With the graphics editor, you can't actually create any graphics, but you can import pictures in many of the popular formats.

text, spreadsheet, and graphics editors. [*But how did Orange Micro get four editors to agree on everything? — Ed.*] You use the frame editor to lay out your page(s). You draw all the various frames and place them where they belong on the page, and you also draw any decorative lines or borders using the frame editor.

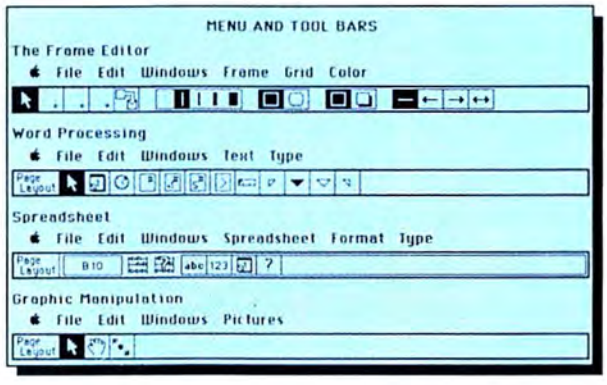
The text editor is the word processor; you use this mode to fill all frames defined as text. With the spreadsheet editor, you can create great looking spreadsheets complete with borders around a specified range of cells. With the graphics editor, you can't actually create any graphics, but you can import pictures in many of the popular formats, such as *MacPaint*, TIFF, PICT, FOTO, and EPS. Once you've imported them, you can resize and/or crop any picture to fit the space where it's needed.

Once you've used the four editors to design a page — such as a blank proposal or a letterhead — you can invoke some of *Ragtime*'s special features, such as its ability to create forms. Leave blank spaces where information will be inserted, pull down the File menu, and select GENERATE FORM. Then whenever you want to write a proposal or letter, just double-click on the Forms icon and a fresh form will appear on your screen. Your original is left intact at all times. *Ragtime* uses the term *tear off* for opening a form. It's like having a pad of forms that never runs out.

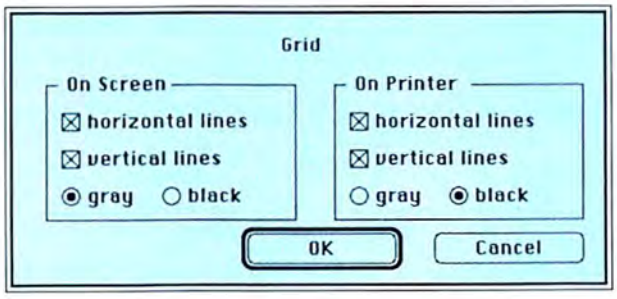
You can also create a great looking form by drawing a spreadsheet frame, telling *Ragtime* to print the frame's border and grid, and inserting the desired headings — and it's all done without your having to draw all those horizontal and vertical lines.

SIGHT READING

When you enter *Ragtime* for the first time, you'll notice a lot of extra items in the upper part of your screen. At the top is a standard menu bar. Directly below this is another row with several icons. This is your tool bar. Each mode of the program has a different menu and tool bar unique to it. Under the title of your document is a gray bar called the page-break band. A small tab in the page-break band lets you know which page you're on. As you get more familiar with the software, you'll know immediately from



Each mode within *Ragtime* has its own unique menu bar and tool bar.



You can add grid lines to *Ragtime* documents — on-screen and off — in your choice of gray or black. To create forms the easy way, just draw a spreadsheet frame and tell *Ragtime* to print the grid.

The Second Ragtime Around

Ragtime's newest version may seem like an old familiar tune, but this integrated business tool has a fascinatin' rhythm all its own.

Ragtime 2.01 is an upgrade to a program that, in spite of being released more than a year ago, is still not a name you hear about on a regular basis. It's one of the friendliest programs I've used in a long time, and this latest upgrade has many super new features as well as enhancements to existing ones.

Orange Micro, its distributor, describes *Ragtime* as a page processor rather than a desktop publishing program per se, but really, it's only limited by your imagination.

Those of you who have used an earlier version are in for a pleasant surprise. And if you've never seen *Ragtime* in action, read on to find out what you've been missing.

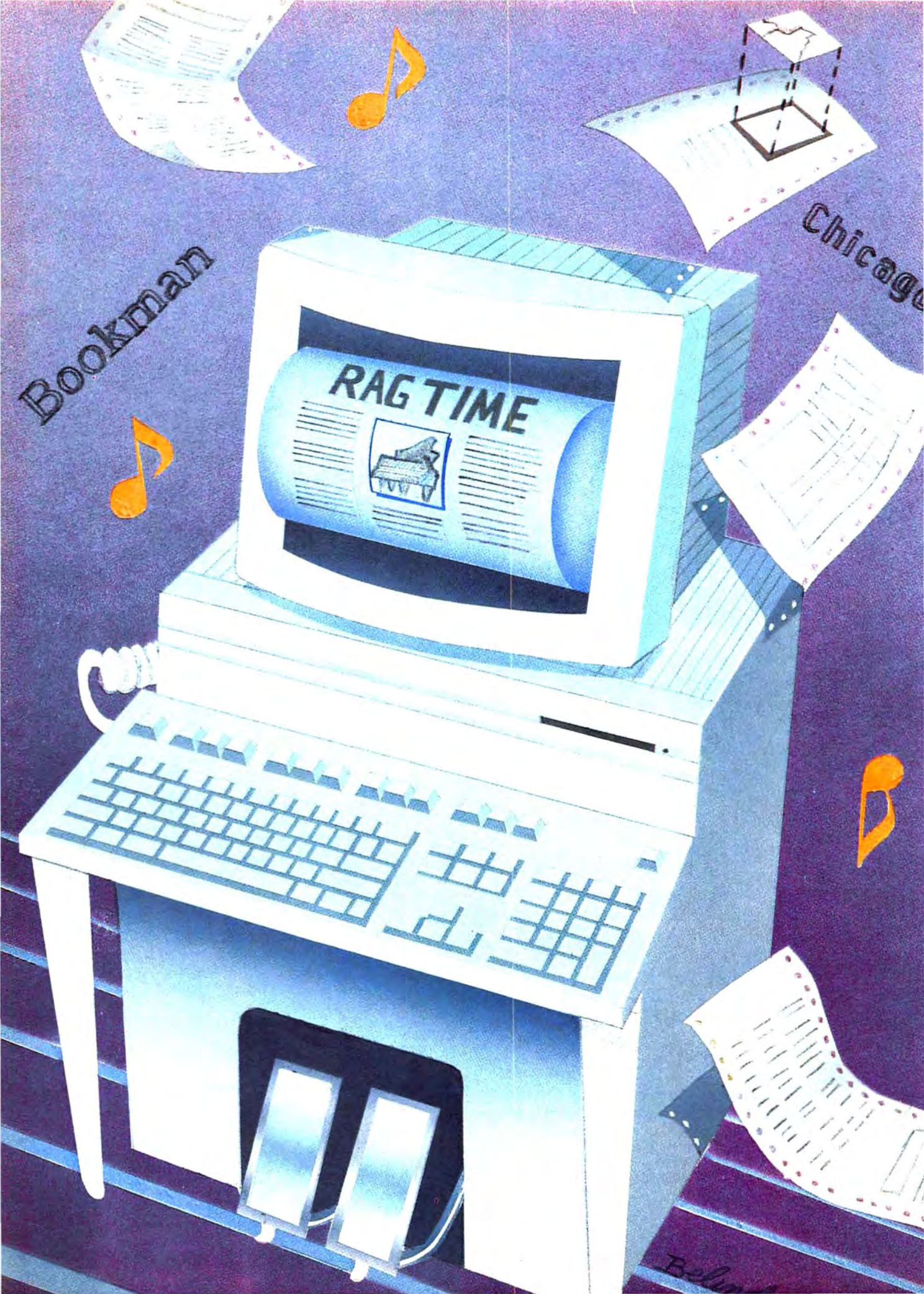
Ragtime is an integrated package — incorporating spreadsheet, word-processing, graphics-manipulation, and page-layout capabilities. Unlike other integrated programs, however, *Ragtime* doesn't give up functionality for integration. Its word-processing features, for example, include leading, kerning, automatic hyphenation, and mail-merge. If you need to format pages but don't need all the power (and expense) of a stand-alone page-layout application such as *PageMaker* or *Ready, Set, Go!*, *Ragtime* offers a simpler alternative.

Creating pages with *Ragtime* couldn't be easier. Each page is made up of frames. A frame is, to borrow George Carlin's expression, a place for your stuff. Each page component is placed in its own frame. The program offers three types of frames — for text, spreadsheet, and graphics — and you can create any number of them of whatever type or size you need. Frames can nest within one another, overlap, or be defined as transparent, enabling you to see what's underneath.

FOUR-PART HARMONY

There are four modes, or parts, to *Ragtime* that work together to produce the final product — the frame,

BY VICKIE LIMPARIS


Bookman
Chicago
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New Features in PageMaker 3.0

SUPPORT FOR LONG DOCUMENTS
- Flow text automatically across successive pages
- Format text with user-defined style sheets
 - Create style sheets directly in *PageMaker*
 - Import a style sheet prepared in *Word*
 - Tag text in a word-processing, database, or spreadsheet program, which *PageMaker* can convert automatically to its own style sheet
- Update stories by exporting to selected word processors then importing back with the new Replace option
- Place text into an existing story with the new Insert option

ENHANCED GRAPHICS CAPABILITIES
- Automatically wrap text around rectangular graphics
- Customize text wraps for irregularly shaped objects
- Support for spot color
- User-definable paper color and spot colors
- Produce spot color overlays
- Built-in brightness, contrast, and special effects controls for scanned images and bit-mapped (paint) illustrations

USER INTERFACE IMPROVEMENTS
- Pop-up menus in dialog boxes
- Hierarchical menus
- New Font, Size, Leading, and Type Style menu items
- Style and Color palettes (similar to the familiar Toolbox palette)
- Color used (when available) to highlight guides and margins

TEMPLATES
- 20 ready-made templates of complete page designs for:

reports	newsletters
fliers	overheads
proposals	memos
company directories	bulletins
calendars	slides
price lists	speaker notes

umn guides, margins, and other guides more visible.

ELECTRONIC PAGEMAKER BLUES

Unfortunately, nothing is perfect, and despite the many wonderful improvements, *PageMaker* 3.0 is no exception. Its biggest drawback is its sheer size. The program itself is more than 900K, which means that a hard disk is an absolute requirement. With all of the support files, the entire package is five 800K disks. Aldus has somewhat ameliorated this flaw with an installer program that makes version 3.0 actually easier to install than previous versions, but the fact remains that a hard disk is required and not optional.

PageMaker 3.0 also has taken a step backward in WYSIWYG. Many operations, including kerning and changing leading, sometimes cause the screen image to become distorted, with pieces of letters cut off, left behind, or both. Changing views or moving from page to page causes the screen to be updated properly, but it is annoying to have to do something to make the screen look like it should have looked in the first place.

PageMaker 3.0 also occasionally has problems importing *Word* 3.0 documents. If you use *Word*' s Fast Save option, your imported document may be read in as gibberish. Most of the time this can be remedied by doing a SAVE AS in *Word* to force a full save.

BUY, BUY PAGEMAKER

PageMaker version 3.0 is an even better desktop publishing tool than its earlier incarnations. It still isn't perfect, but it has been greatly improved. If you're a user of previous editions and you didn't upgrade to 3.0, you should kick yourself and upgrade now (in that order).

If you have avoided *PageMaker* in the past because of its shortcomings, such as manual text flow, limited text wrap, and its dearth of word-processing-like features, it's now time to reconsider.

One thing is certain. *PageMaker* 4.0 will have a tough act to follow. It's going to be very interesting to see where Aldus goes from here.

ROBERT R. WIGGINS IS MACUSER'S CONTRIBUTING BUSINESS EDITOR AND USES PAGEMAKER 3.0 TO PREPARE HIS NEWSLETTER, THE MACINTOSH BUSINESS LETTER.

MACUSER RATING

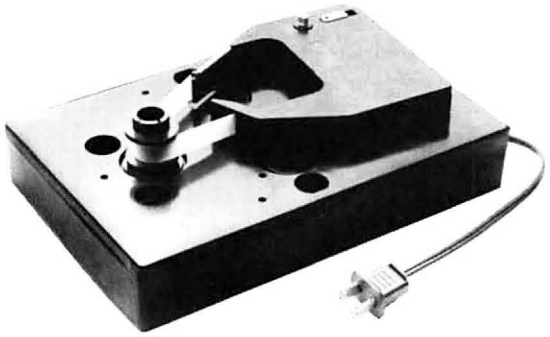
PageMaker 3.0 ★★★★½

Follows Mac Interface	■ ■ ■ ■ ■
Printed Documentation	■ ■ ■ ■ ■
On-Screen Help	■ ■ ■ ■ □
Performance	■ ■ ■ ■ □
Support	■ ■ ■ ■ □
Consumer Value	■ ■ ■ ■ □

Comments: Powerful publishing tool with color support and an improved interface. **Best Feature:** Ability to flow text automatically around graphics. **Worst Feature:** Hard disk required. (The program is more than 900K.) **List Price:** $595. Published by Aldus Corporation, 411 First Avenue South, Seattle, WA 98104; (206) 622-5500. Mac 512KE or better required, one megabyte of memory required, hard disk required, Apple System 4.1 or higher required. Not copy protected.

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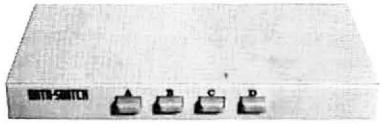
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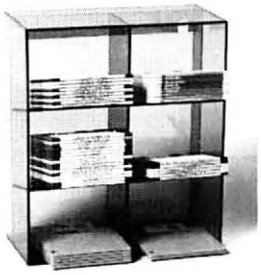
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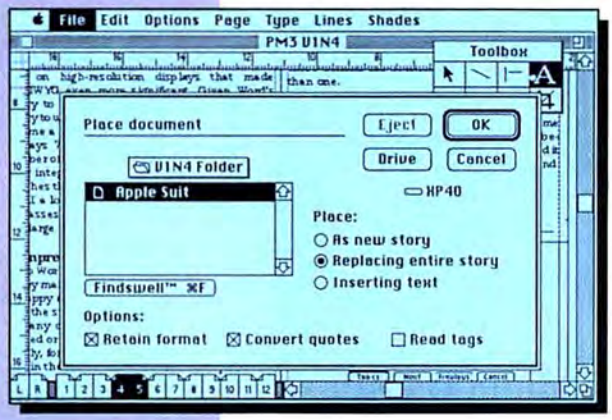
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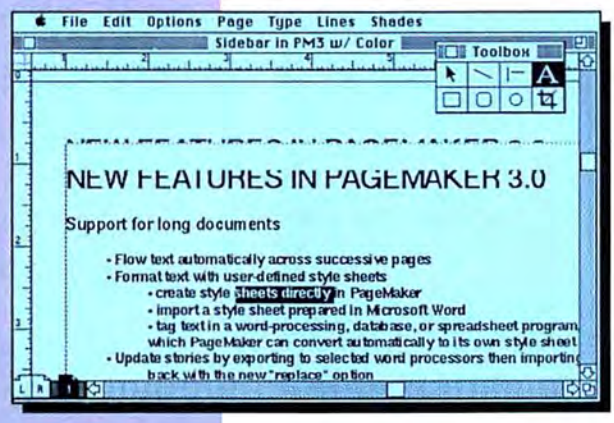
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The "Place document" dialog box shows the new options for replacing and inserting text, as well as converting quotes into "Smart Quotes," and reading style sheet tags.



***PageMaker*'s style sheets are defined much as they are in *Word*. Using this dialog box, new styles can be added, existing styles can be edited, and other styles can be copied from *PageMaker* documents.**



***PageMaker* 3.0 doesn't always update the screen properly. Note the chopped off letters in the headline on this page.**

create an irregular wrap of any shape around any graphic.

TWEAKING THE SMUDGE AWAY

A common problem with scanned and paint-type images is getting them to look their best when printed. *PageMaker* 3.0 adds a special feature called "Image Control" that allows you to tweak scanned images and paint-type graphics.

Image Control allows you to adjust brightness and contrast in scanned images and paint (bit-mapped) graphics. It also allows you to adjust the gray levels in gray-scale images and to create line screens with adjustable densities.

While Image Control does not begin to offer the power and flexibility of programs like *Digital Darkroom* or *Image Studio*, it does obviate the need for such programs when only minor adjustments are required.

PageMaker 3.0 offers support for spot color. Like style sheets, colors can be defined and edited. Colors can be defined using the cyan, magenta, yellow, and black model (CMYK); the hue, light, and saturation model (HLS); the red, green, and blue model (RGB); or on a Macintosh II (only), using the color wheel and the hue, saturation, and brightness model (HSB). Colors can be named whatever you like.

Three colors, however, are defined for you and are special. "Paper" is the background color and is initially set to white, but you can change it to whatever color you wish. "Black" is permanently set to black, and is the default color for text. "Registration" is also permanently set to black, and is the color used for printing registration marks for color overlays.

Once you define the colors you want to use, there is a Color palette available that is very similar to the Style and Toolbox palettes. You simply select the text or graphic element you want colored and choose the color's name from the palette. For text, color can also be an attribute defined as part of a style sheet.

When printing, you specify "spot color overlays" in the print dialog and *PageMaker* 3.0 prints a separate page for each color used in your document. If your page size is smaller than the paper size, you can also check "crop marks" and *PageMaker* 3.0 will print registration marks and the name of the color associated with each overlay.

Sometimes it's the little things that are most appreciated. In a delightful touch, *PageMaker* 3.0 recognizes when it is operating in color on a Macintosh II, and uses color to make col-

lists. The fonts are even displayed in alphabetical order. *PageMaker* 3.0 also reduces the number of "phantom fonts" that appear. Only fonts used in the document which cannot be located by name or number appear grayed out. So if you have renamed some of your fonts to change the menu order, *PageMaker* will locate them by number and no longer show the old names grayed out.

WRAP AROUND THE PIC

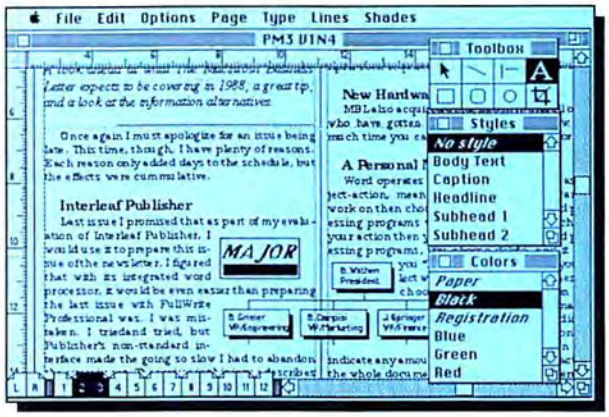
The improvements in *PageMaker* 3.0 for working with text are so welcome that Aldus could have stopped there. But they didn't. They also improved its ability to handle graphics.

In previous versions, wrapping text around graphics was manual labor, as tedious as flowing text. Version 3.0 improves the process dramatically. You have the option of no wraparound, which is the default, and as in previous versions you can manually text-wrap as necessary. But you also have the option for automatic wraparound, and you can specify the "standoff" around the graphic independently for the top, bottom, left, and right, leaving whatever margin you wish around the graphic's rectangular boundary. You can also choose if you want the text to wrap around the graphic, jump over it, or have the graphic force a column break.

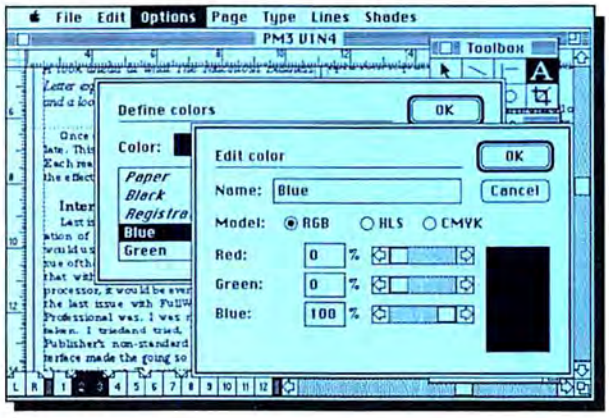
ANYONE CAN WRAP

While other page layout programs have offered the ability to wrap around an irregularly shaped graphic itself, and not just around the rectangle containing the graphic, *PageMaker* 3.0 puts a novel twist on this idea and lets you create an irregular boundary of any shape around any graphic. You can make the boundary the same shape as the graphic if you wish, or you can be as creative as you choose.

When you specify text wrap for a graphic, it is automatically given a rectangular boundary that encloses the graphic with the standoff you specify on each of the four sides. The boundary is represented as a dotted line around the graphic with what appear to be handles at the four corners. But these handles work differently from the handles around the graphic itself. Moving one of these handles moves the lines connected to them. If you click in the middle of one of the dotted lines, a new handle appears, breaking the line into smaller segments. By creating and manipulating these handles, you can quickly create a boundary of any shape at all. While this is not as simple as programs such as Quark *Xpress*, which will automatically wrap around an irregular graphic, it is more flexible by allowing you to



The Style and Color palettes, shown below the standard Toolbox palette. These new palettes have grow boxes and can be resized.



Editing colors is simple, although a bit difficult on a black and white monitor where the example on the right is always black or white. On the Macintosh II, the standard color-picker wheel is accessible.

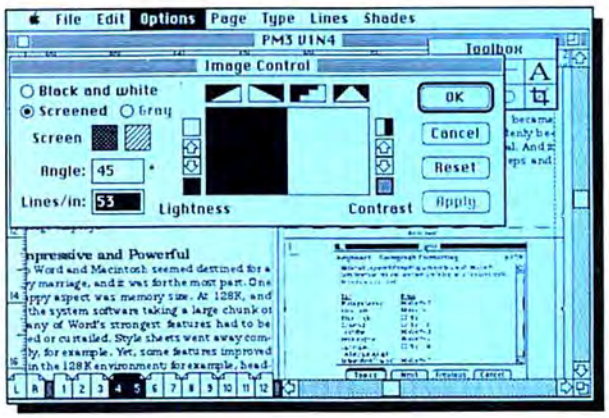
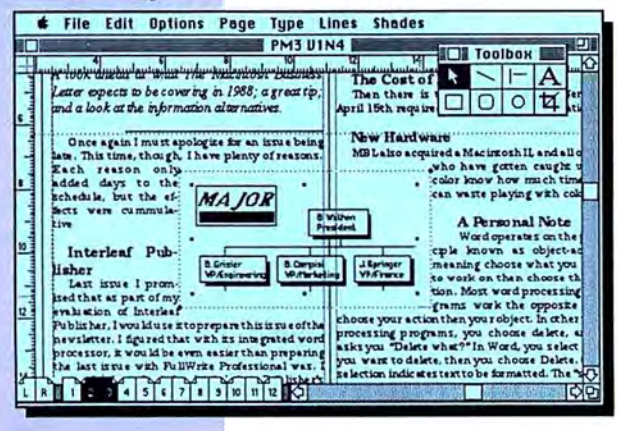
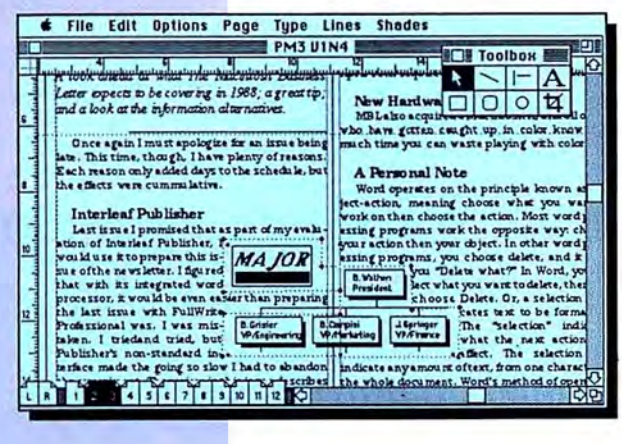


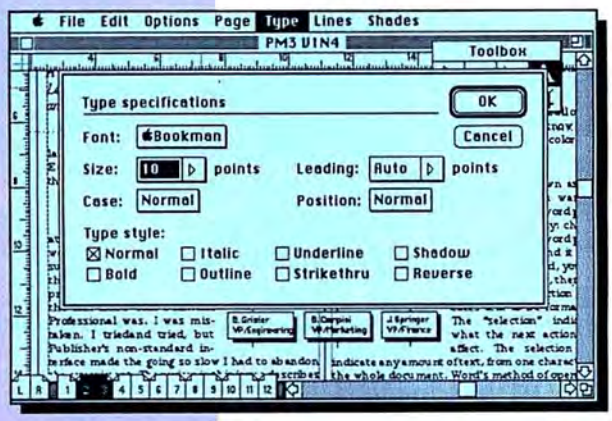
Image Control provides simple adjustments and special effects for scanned and bit-mapped (paint-type) graphics. The four icons across the top indicate gray maps.



In Auto Wrap mode, *PageMaker* prefers rectangular areas, but you can override this option and flow the text however you wish. The small black squares are the "handles" for resizing the graphic. The dotted rectangle is the graphic boundary, with its own handles at the four corners.



Custom isn't necessarily better. This is the same graphic, but with a custom boundary done by hand. The text now enters the graphic through the opening on the left. The boundary can be made any size and shape, so you can fix this.



The Type Specs dialog has been streamlined considerably. The shadowed rectangles indicate "pop-up" menus. The size and leading can be typed in if you need values that aren't on the menus.

CHANGING STYLE SHEETS AND TAGGING

PageMaker 3.0 does add one feature usually found in word processors: style sheets. Through the use of style sheets, imported text can be formatted quickly and exactly the way you want it, regardless of how it looked originally.

Style sheets in *PageMaker* 3.0 can be defined from scratch, based on an existing style in the current document, copied from other *PageMaker* documents, or imported with a word processor document (notably *Word* documents) when "retain format" is specified. Once defined, the style names appear on a hierarchical menu attached to the Style selection of the Type menu. Applying a style is a simple matter of selecting the text, then selecting the style from the hierarchical menu. There is also a Style palette available, similar to the Toolbox palette. This palette can be used to keep all your styles at hand in a floating window on top of the document window. The Style palette, unlike the Toolbox palette, is also a resizable window (with scroll bars), so you can make it as large or small as you want.

When importing and exporting text, *PageMaker* 3.0 supports "tags" to associate styles with blocks of text. A tag for a style called "Normal" would look like this: <Normal>. When exporting text, *PageMaker* can, at your option, intersperse these tags with the text. When importing text to place, *PageMaker* can read these tags to assign styles to the text. In this way, style sheet information can be retained when moving text in and out of *PageMaker*. You can also type tags into plain text documents so that *PageMaker* can handle much of the formatting for you when you import the text.

ANY TYPE YOU CAN SPEC, I CAN SPEC BETTER

PageMaker users tired of constantly having to call up the Type Specs dialog box for even the simplest changes will enthusiastically welcome another set of new features. *PageMaker* 3.0 adds a set of hierarchical menus at the top of the Type menu that allow you to change fonts, sizes, leading, and type styles (bold, underlined, and so on) quickly. In conjunction with style sheets, these menus mean that those frequent trips to the Type Specs dialog are a thing of the past. When you do have occasion to use the Type Specs dialog, you'll be in for another pleasant surprise, as it has been completely redesigned and streamlined through the use of pop-up menus to replace all those scrolling

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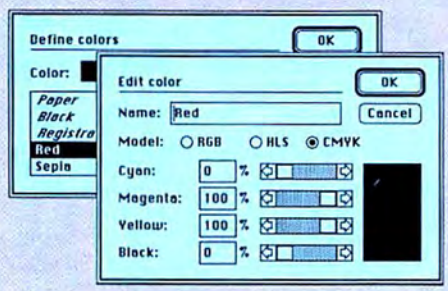
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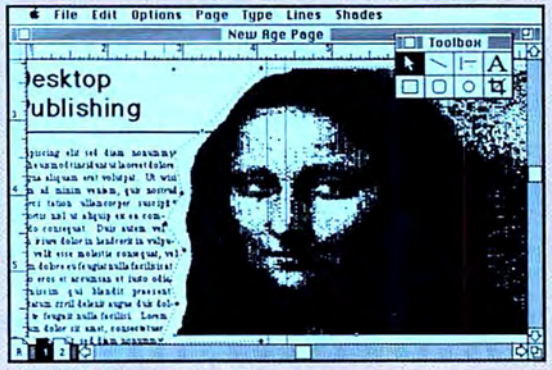
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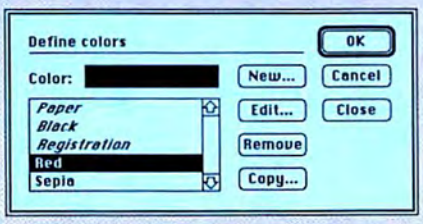
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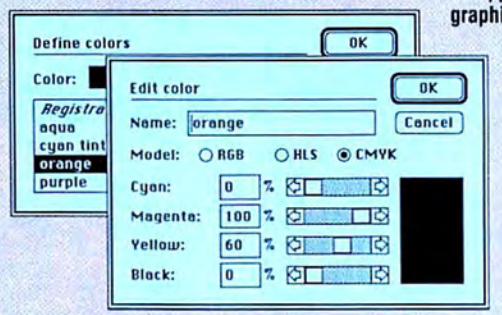
Color My World. *PageMaker* 3.0 supports spot color for text, and lets you both define and edit your colors using the CYMK, HLS, RGB, or HSB models.

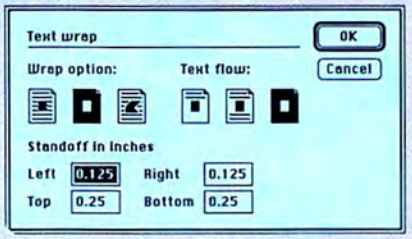


PageMaker's approach to irregular boundaries around graphics is unique. The black boxes on the dotted lines are handles that can be dragged to reshape the boundary.

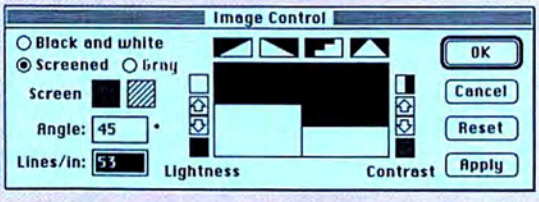


Color My World, part 2. *PageMaker*'s color capabilities can also be applied to graphics.

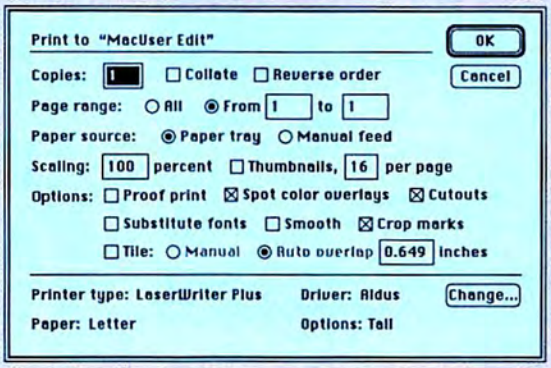




Wrappin'! You can now choose from three forms of textwrap: text can flow through a graphic, wrap around a regularly shaped graphic, or can wrap around an irregularly shaped graphic, using a custom border. The text flow itself can be controlled to create a column break when the text hits a graphic, to jump over the graphic, or to wrap completely around it. The Standoff is the space between the graphic and the text.



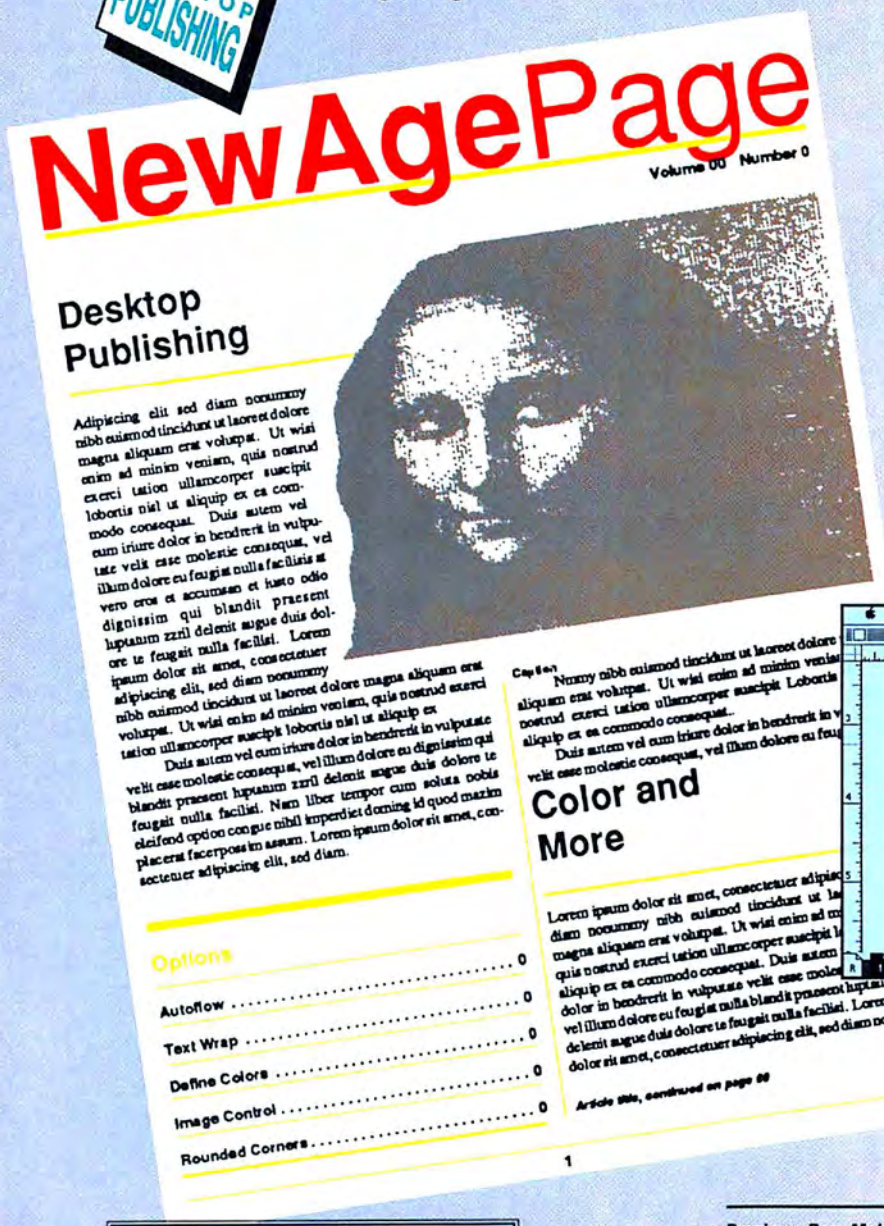
Make the Smudge Go Away! Although not as powerful as dedicated image enhancement programs, *PageMaker*'s Image Control lets you fix scanned and paint-type graphics that just don't look right. You can control brightness, contrast, and more.

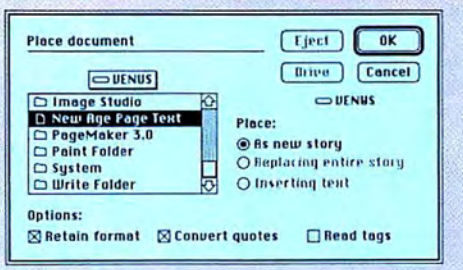


Getting it on paper. *PageMaker*'s Print dialog box gives you a number of options, including Spot color overlays, and Cutouts.



Printing with both the Spot Color Overlay and Cutout options active results in a different sheet for each of the color separations.

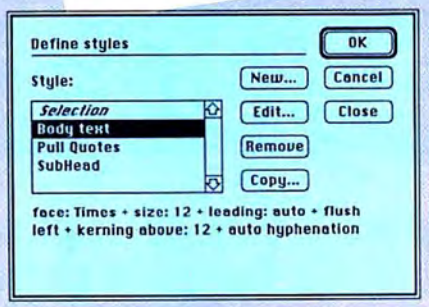




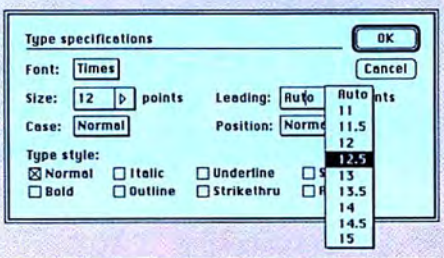
Your place or mine? The Place dialog box gives you the choice of placing text as a new story, as a replacement for existing text, or in Text Edit mode, as an insert in existing text. You also have the option of retaining the text's formatting, converting typewriter quotes into smart quotes, or to apply *PageMaker* style sheets.



In Automatic Text Flow, the cursor turns into a snaking arrow. In this mode, placed text will flow from column to column and page to page, adding pages as necessary until all the text has been placed or you reach the maximum publication size (128 pages).

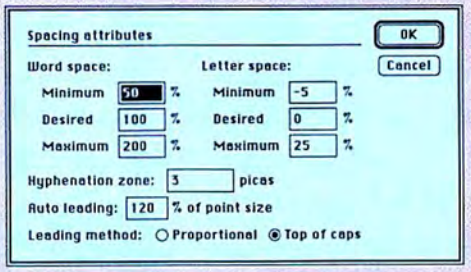


Previous *PageMaker* users will be glad to see the new Type Specs dialog box, which has added hierarchical menus so you can change fonts, sizes, leading, and type styles quickly.

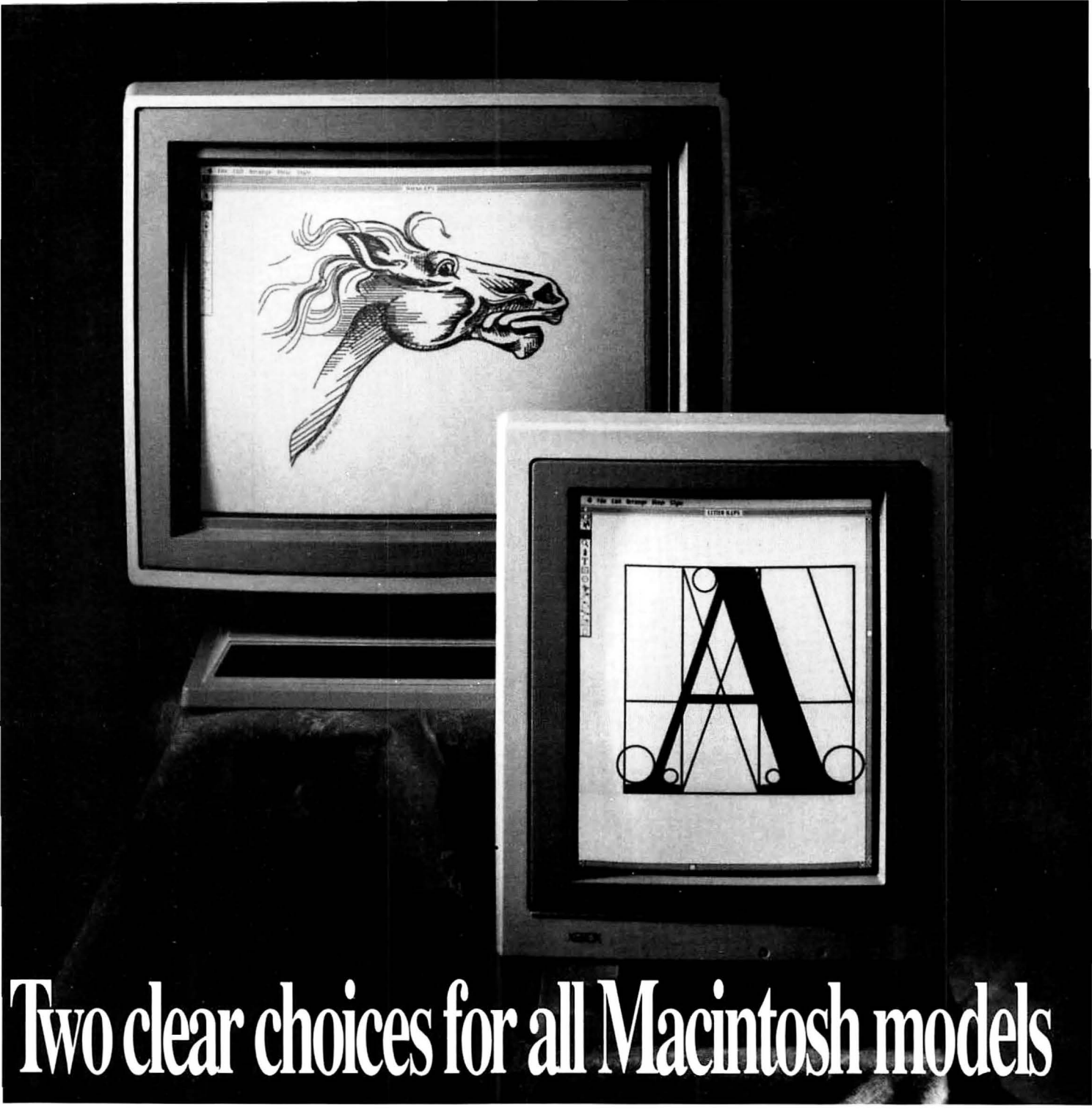




Style, Style, Style. *PageMaker* now offers stylesheets that let you format text quickly and easily. As you might suppose, you can also edit them.



Creating your own space. The Spacing Attributes dialog box gives you control over your word spacing, kerning, and leading.



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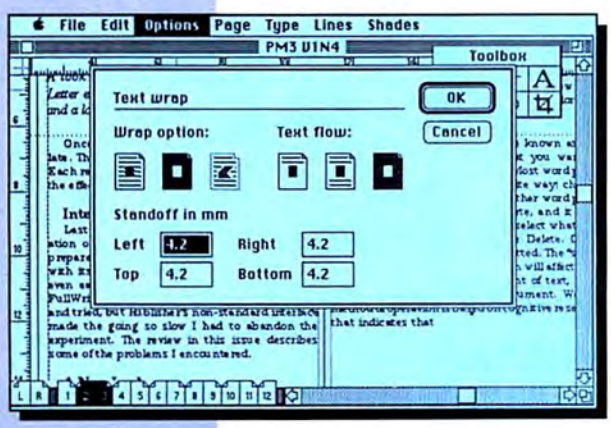
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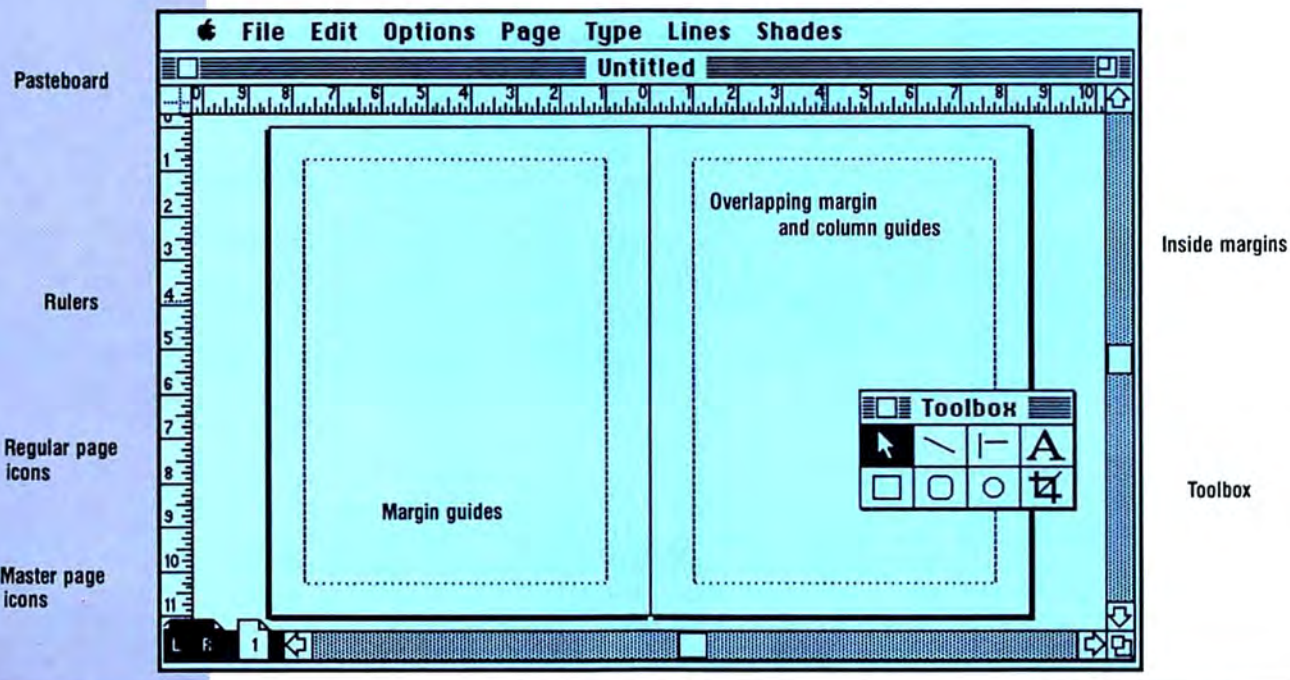


The Text Wrap dialog box makes specifying how to wrap text around graphics simple and straightforward. Standoff is the "margin" around the graphic.

page, adding new pages if necessary, until all the text is placed or the maximum document size is reached (still 128 pages). There is also a semiautomatic mode of autoflow, which is like the old manual method except that the need to click on the continuation indicator is removed. In semiautomatic mode, when the end of a column or page is reached, the flow stops but the "loaded" text icon is automatically displayed as though you had clicked on the continuation indicator.

Other enhancements have been made to the text import facility. If the I-beam cursor is selected and the insertion point is within an existing story, you now have the option to import a word processor document or text file as a new story (the default, which leaves the already selected story unchanged); to replace the existing story completely with the new story; or to have the new story inserted into the existing story at the insertion point. The option to replace, when used in conjunction with the export facility, is an excellent way to "touch up" stories and to get access to a word processor for the features that *PageMaker* lacks. As an example of this, you could write an article in *PageMaker*, then export it to *Microsoft Word* or to *WriteNow*, use the word processor's spelling checker and do any other clean-up required, then import the story back to replace the original story, and in the process retain all formatting. While this is not as convenient as having word processing features in *PageMaker*, it's a major improvement.

Two other options are available when importing text. "Convert quotes" will automatically turn the normal neutral quotation marks into the opening and closing typesetting quotation marks (often called "smart quotes"). "Read tags" is used with style sheets.



***PageMaker* 3.0 has retained the pasteboard metaphor that should be familiar to anyone who's ever done the real thing with scissors and glue.**

New Age Page

PageMaker 3.0 should put a song in the heart of everyone who's tripping the DTP fantastic.

Is this a great country or what? Take *PageMaker*, for example. Aldus took the idea of page layout software and made the term "desktop publishing" a household word, but they didn't just sit on their laurels. They listened to their customers, watched their competition, and kept improving their product. The latest version, 3.0, is another major improvement on an already good (and best-selling) package.

Many features have been added to *PageMaker* 3.0, but the most significant are the ability to flow text automatically, the addition of style sheets, and the ability to wrap text around irregular graphics. Other improvements include spot color support and easier text import and export. The user interface has been refined through the use of hierarchical menus and less complex dialog boxes. Aldus even includes twenty templates to help the novice user get started more quickly.

Taken altogether, the enhancements in *PageMaker* 3.0 make for a much easier to use and much more powerful program. But the simplicity of the user interface remains.

IF I COULD DO PASTE-UP

PageMaker 3.0 retains the "pasteboard" metaphor of its predecessors. The pages being designed lie in the middle of a white work area that *PageMaker* calls the pasteboard. Text and graphics can be dragged between this area and the page, simulating physical paste-up. Because items left on the pasteboard are accessible from every page in the document, this noncomposing area is a handy place to keep often-used text and graphics and can even be used as a vehicle to move items from page to page.

IMPORT, EXPORT, SWIFTLY FLOW THE WORDS

The pasteboard metaphor has its bad points, though. Articles ("stories" to *PageMaker)* are expected to be prepared in word processors first and then "placed" into the page layout. Some of *PageMaker*'s competitors incorporate many word-processing features that allow articles to be written directly in the page layout program. Even in version 3.0, *PageMaker* lacks most such features (notably Find and Change). Nonetheless, this version adds improvements to the process of creating and updating text.

In contrast to its predecessor, *PageMaker* 3.0 improves the process of importing and exporting text in several ways. The most notable refinement (and undoubtedly the most requested) is the ability to "autoflow" text. In previous versions, text only flowed automatically into the first column or page selected. After that, users had to laboriously click on the continuation indicators at the bottom of each block of text and manually flow each succeeding column or page. With a long story, this was unbearably tedious. In version 3.0, there are three ways to flow text: the old manual way and two methods using the new autoflow. When in autoflow, a placed story flows automatically from column to column and page to

BY ROBERT R. WIGGINS

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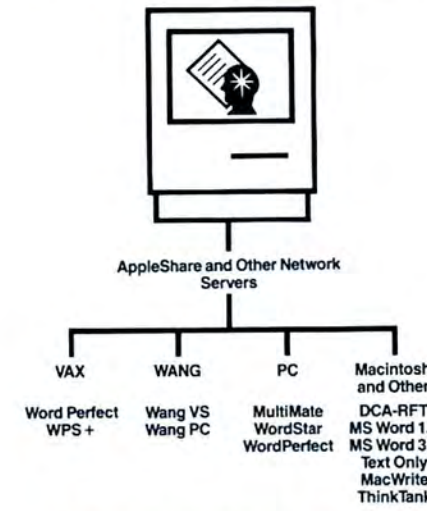
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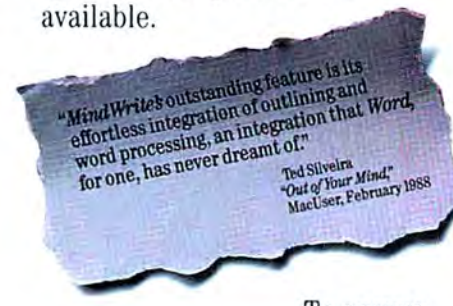
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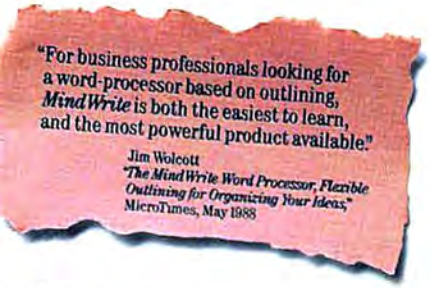
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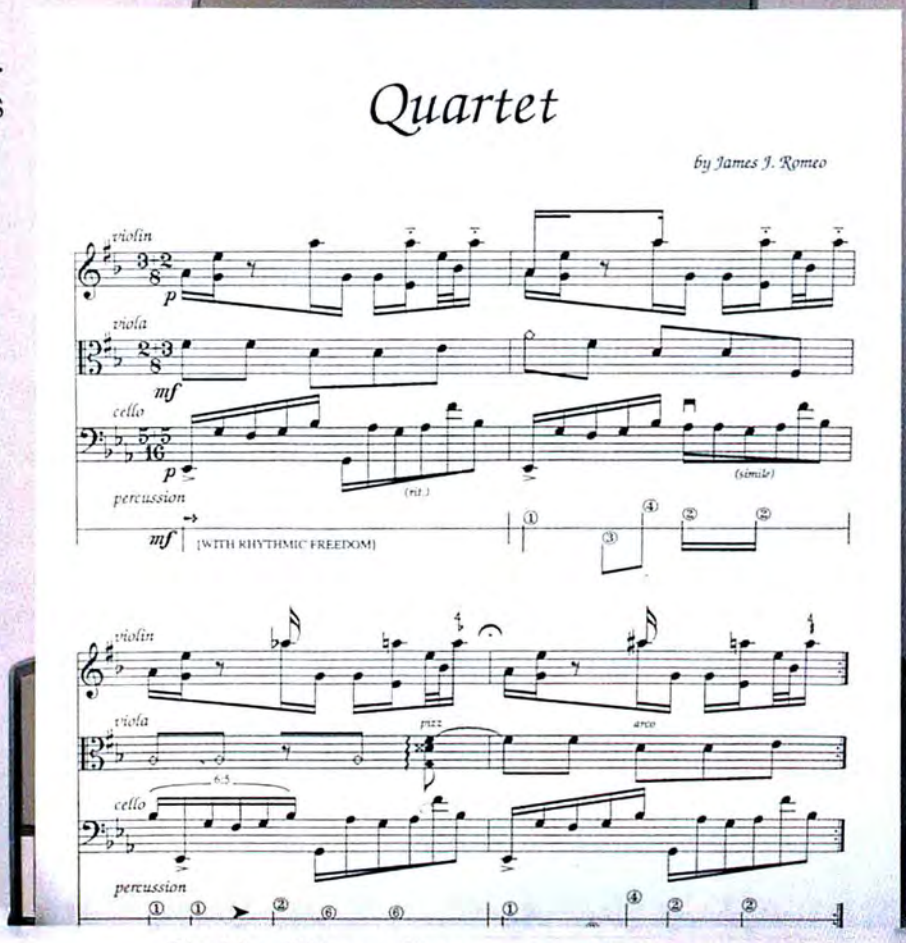
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THE HELP FOLDER

BY CHRIS ESPINOSA

Got a Mac problem? Something you'd like explained? Something you can't find the answer for anywhere else? Apple's Chris Espinosa (a real veteran at Apple) will answer your questions every month in this space. When the questions are too tough for him, he'll get the answers from other members of the Mac team. So ask what you need to know and get your answers straight from the source!

Send your questions to Chris care of MacUser, *950 Tower Lane, 18th floor, Foster City, CA 94404. Chris will read all your questions, but unfortunately, he may not be able to answer individual queries.*

MYSTERIOUS FILE GROWTH

Q. I am running a Macintosh II with the Apple 40-megabyte internal hard disk and the Apple color monitor. Sometimes when I copy a file from a floppy to the hard disk, the file seems to grow, taking up more memory on the hard disk than on the floppy. What is the explanation for this?

MICHAEL GROFF
SWARTHMORE, PA

A. Floppy disks and hard disks are divided into "blocks" of 512 bytes. Each block holds a piece of a file, and no two files can share the same block. So that text file you save that only has a sentence or two in it will show up in the *Finder* as using 0.5K of a floppy disk, because it consumes one block, even though it only uses a little bit of it. Thus the amount of disk space used is obviously always rounded up from the file size.

For convenience, some hard-disk drives use "allocation blocks" that are two, four, or even eight blocks in size. This is based on the idea that it's almost as fast to get a lot of information as a little; it's also easier for the file system to keep track of a few big blocks than a lot of little ones.

So what you're seeing is the difference in rounding up to allocation-block sizes. The disk on the floppy is rounded up to the nearest 0.5K, but the same file on hard disk may be rounded up to the nearest 1 or 2K (depending on the capacity of the hard disk).

LINE UP THE DIGITS

Q. I am looking for a LaserWriter font that has proportional letters and nonproportional numbers. The objective is to have columns of numbers line up vertically. When using the built-in LaserWriter Plus proportional fonts, columns of numbers waver vertically because the different number characters have slightly different widths. Although numbers will line up in exact columns when a nonproportional font is chosen, the accompanying text does not look as good as with a proportional font.

KEN GRAHAM
BERKELEY HEIGHTS, NJ

A. Most Macintosh screen fonts supplied by Apple and all LaserWriter and LaserWriter Plus fonts have constant-width digits, and we recommend constant-width digits to all third-party font designers. It's been a standard in typography since the birth of financial printing. So if you're having trouble lining up columns of numbers, try the following suggestions.

In spreadsheet programs such as *Excel*, use a cell format that has a constant number of places after the decimal and left-align them. Using the General format in *Excel* with numbers that vary in precision is a sure way to have your columns wander. Similarly, in word processors, use a right-aligned tab and keep a constant number of places after the decimal or use the decimal tab that many word processors include specifically for this purpose — it aligns a tabbed column on the decimal point (or on the right if no decimal point is present). Both *MacWrite* and *Word* include decimal tabbing. Remember — use the Tab key, not spaces, before each number in the column.

The presence of nondigit characters, such as commas, parentheses, and dollar signs, may alter the alignment of digits in columns, but they shouldn't be a problem if you use them consistently.

HOLY MACINTOSH!

Q. I am serving on a committee that is choosing a computer for our church. We are leaning strongly toward the Macintosh because of its ease of use and because desktop publishing is an important part of the church's need for a computer. Neither the church secretary nor the rector have any computer experience.

Their primary needs will be for a database of parishioner information, word processing, and maintenance and use of a mailing list for various church mailings. We thought we could start them on *Microsoft Works*, and they could move along to *Excel*, *Word*, and *PageMaker* as needs and their sophistication warranted. We are also interested in any specifically church-related software for the Mac. Can you tell us what there is or where we can go to look for it?

LINDA MACINTOSH RODGER
LONGMEADOW, NY

A. The only listing I have is the *Church Management Package* from Specialty Software (P.O. Box 188, Humboldt, IL 61938; (217) 234-

3531). According to the MENU software database, it includes the *Membership Records* program, which keeps track of all vital information about every member. This information can be sorted and searched for many different types of reports. The program also includes a report module to generate mailing labels, family mailing labels, Rolodex files, and mail-merge files.

The *Contribution Records* program keeps track of individual contributions and can print monthly, quarterly, or yearly statements for the contributors while automatically calculating all totals.

The *Church Finance* program handles all incoming and outgoing monies, what money is spent on, and what budget category the expense applies to. It prints statements by budget categories or monthly, quarterly, and yearly reports.

The suggested retail price of the entire package is $275, and it's available for the Macintosh 512K, Plus, SE, and II. Your Apple dealer can order this product on AppleLink by sending a Link to MENUORDER.

LOOKING FOR A LOST FEATURE

Q. I bought my Mac in February '84. At some time in those early years, I discovered that *MacPaint*'s PRINT CATALOG did indeed create tiny pictures with enough clear detail to identify them. *MacPaint* was the answer to all my girlish prayers! I have no talent for drawing, but between clip-art programs and *ThunderScan*, which I bought in March '85, I have an extensive library of pictures, and it's my greatest joy to use appropriate pictures for family greeting cards, club newsletters, and all that stuff.

Then one sad day I discovered *MacPaint* no longer printed a picture of the document but only a picture of the icons of the screen with the titles under them. I have asked several dealers if they still have a version of the *MacPaint* that printed the tiny pictures. I even took in one of my earlier printouts. I wish you could have seen the incredulous looks I got in return! I hadn't been able to find anyone who remembered such a program until I read the tip from Udo Fischer of Alamogordo, NM.

Pleeeeeeze, see if you can determine why it's no longer available on *MacPaint*, and what version it was, and how I can get a copy of it.

PATRICIA MCCARRELL
OAKTON, VA

A. The picture we printed in the January '88 "Tip Sheet" was meant to show the mixing of *MacPaint* and *FullPaint* documents in the same folder; the caption was erroneous. We probably were confused in the same way you were: There's a PRINT CATALOG command in the *Finder*, which prints a *Finder*'s-eye view of the folder, and a different PRINT CATALOG command in *MacPaint*, Version 1.5 and earlier, which does produce the pageful of little pictures you want — if you do it properly.

On 400K disks, *MacPaint*'s PRINT CATALOG can print miniatures of all *MacPaint* files on the disk, but on 800K disks or most hard disks, *MacPaint* can only do a folder's worth at a time. So double-click *MacPaint* to open it, choose CLOSE from the File menu, and choose OPEN and select a *MacPaint* file in the folder you want the catalog of. Then choose PRINT CATALOG from *MacPaint*'s File menu and you should be set.

I'm sad to have to report that Claris removed the PRINT CATALOG feature in *MacPaint*, Version 2.0, replacing it with PRINT SELECTION. So, to keep your pictorial catalogs, you should stick with Version 1.5 or earlier, which should be available from most Apple dealers.

AUTOMATIC MAC

Q. Is there any way to automate the start-up of the Mac beyond just one instruction? I can ask my Mac to start up with a selected application, but is there any way I could, for example, ask it to automatically load my RAMdisk with appropriate programs, install a print spooler, and launch my word processor — the equivalent of an autoexec.bat file on an MS-DOS machine?

ALEX LEWIN
CAMBRIDGE, MA

A. *Tempo II* from Affinity Microsystems [1050 Walnut Street, Suite 425, Boulder, CO 80302; (800) 367-6771] has the ability to replay a macro file upon system start-up. And it's easy to use: Just install *Tempo;* choose it from the Apple menu; choose START RECORDING; do what you want to do, mouse click by mouse click; then choose STOP RECORDING. *Tempo* will then replay the exact sequence when you issue a keystroke or automatically upon start-up.

RUNNING OUT OF ROOM

Q. I am using a Mac 512K that has been upgraded with the 128K ROM and 800K drive but not the logic-board upgrade. I am using *System* 4.0 and *Finder* 5.4. Currently, after booting the *Finder* from my 20-megabyte hard drive attached to a SuperMac Dataport, I have approximately 290K of free memory. As some of the new software I would like to run requires *System* 4.1, I would like to install the new *System*. Unfortunately, it seems that *System* 4.1 uses a good deal more memory than an identically configured *System* 4.0. I am not using RAM cache, a print spooler, or a RAMdisk. I have already trimmed my fonts and DAs to the smallest acceptable set. Is there anything else I can do (other than buying more memory) to reduce the size of *System* 4.1?

LOU BEENE
RALEIGH, NC

A. First off, you can put back the fonts and desk accessories. Though they take up room on your hard disk, they aren't loaded into memory until you specifically call for them, so they're not contributing to the crowding. But you're right, *System* 4.1 is indeed a little more piggy than *System* 4.0 — and also more reliable. These two facts are not unrelated.

Although *System* 4.1 doesn't actually consume that much more space than 4.0, it does reserve more memory in the *System* heap (the area of RAM that's cordoned off at system

start-up time for the *System*'s exclusive use).

Using *Fedit*, you can change the amount of space that's reserved for the *System* heap. Here's how: Select OPEN VOLUME to open the hard disk that you boot from, choose EDIT BOOT BLOCKS, and change the number under System Heap Size (512K) to 49152. Then choose WRITE BOOT BLOCKS. Don't set it any lower than 49152, and don't install any of those RAM-consuming goodies you mentioned.

Other readers note: This technique works only on *System* files, Version 4.1 and earlier; later versions have a slightly smarter way of sizing the *System* heap at start-up time, and they ignore the number in the boot blocks.

TIRED OF WASTING PAPER

Q. All I want (this time) is to be able to eliminate the annoying page eject that occurs after every printout, even (and particularly) a Command-Shift-4 window dump. Is that asking too much?

I thought I had what I needed when I read an article on how to patch PREC resources with *ResEdit*, but that had no effect. More recently, I tried the same sort of thing using *Widgets* and a DA from Quick & Dirty Utilities, Volume Two. Still I had no luck. The window is printed, and the ImageWriter stubbornly advances 11 inches from where the dump started.

These changes are made to the ImageWriter driver in my current *System* folder, and I reboot before trying to print. I can see the changes are there because Quick & Dirty Utilities lets me add a sixth paper size. Is it possible that *System* 4.2/*Finder* 6.0 ignores PREC? Is it possible to achieve the same end another way?

VANYA MATZEK
CUPERTINO, CA

A. No, the *System* and *Finder* don't ignore the PREC settings, but FKEY 4 does and it's the culprit. FKEY 4 is hard-coded to use an ImageWriter I or II connected to the printer port, with a paper size of 11 inches long, Faster mode, portrait orientation. It ignores any other settings you may make in Page Setup or *Chooser*. This also explains why you can't use Command-Shift-4 to print to a LaserWriter or networked ImageWriter.

What you can do, of course, is use Command-Shift-3 to dump the output to a *MacPaint* file and join the screen dumps together later in *MacPaint* before printing. Or use *MacPaint* to adjust the screen dump's position on the page to the top left corner; then use *HyperCard*'s IMPORT PAINT command to import the pictures into a *HyperCard* stack, where you can sort, organize, and store them; and then use PRINT STACK to print multiple pictures per page.

CURSORS IN *WORD* 3.01

Q. I have a problem concerning the I-beam cursor used in *Word* 3.01. Because I use mostly 9- and 10-point type in my word-processing work, Microsoft's default I-beam cursor is way too long and its "hot spot" is way too high to be useful. If I click on a line to edit it, I usually get highlighting of the line above rather than the line on which I'm working. On many occasions I lose copy as a result of deleting something above the line when I'm not taking my eyes off the keyboard. How can I shorten this cursor?

By using *ResEdit*, I was able to shorten the cursor in my *Word* 1.05 program. But when I tried this technique with *Word* 3.01, I discovered there is no cursor resource in the *Word* file as there was before. Changing the cursor resource in the *System* file doesn't help at all. I tried running through every resource looking for the cursor with no luck. Where is this missing resource?

DICK ROLLER
PARIS, IL

A. I poked around a little and finally found it. Microsoft now uses a pseudocode (or P-code) interpreter when developing its applications. Rather than compiling the application down from a high-level programming language to 68000 object code, the company compiles down to an intermediate language called P-code and provides a run-time interpreter that executes it.

For some reason, when it does this in *Word* 3.01, it also includes most of the things Macintosh programs normally include in resources — menus, strings, and cursors — right in the middle of the P-code. That makes those things inaccessible to *ResEdit*.

Here's the fix you want. Use *Fedit* to open your *Word* 3.01 file. Choose SEARCH HEX and look for the string 0C60 0280 0100 (I found it at position 6A74 in the file). The 32 bytes at that location are the cursor; the next 32 are the mask, which is all 0s in my version; and the 4 bytes after that are the hot spot (0004,0007 in my copy).

If you don't want to design a new cursor in hexadecimal, then just use *ResEdit*, get your good cursor from *Word* 1.05, choose OPEN GENERAL to list it in hex, and type those hex numbers into the correct positions in the *Word* 3.01 file using *Fedit*.

Somehow I suspect that a similar technique would work in the *Microsoft Windows* version of *Word* as well.

A CHANGE IN ICONS

Q. I have been wondering about the icons under *Finder* 6.0. Since I started using *System* upgrade 5.0 (with *System* 4.2 and *Finder* 6.0), my icons look a little bit different — for example, now when I select the Mouse icon in the System folder, it has no tail! Many other pretty icons now look shabby.

I suppose the new Finder is using QuickDraw's srcBic transfer mode instead of srcXor. Is this one of the "improvements" of the new System or just a caprice of Apple?

ARATA NUNOBE
ITHACA, NY

A. Though it doesn't seem to be an improvement to owners of black-and-white Macintoshes, the *Finder* icon highlighting indeed was changed — to highlight color icons properly, which *Finder* 6.0 now supports. When you set the Monitors control panel to more than two colors, a Color menu appears that lets you control the color of each individual folder or icon and a new

view — BY COLOR — is added to the View menu. This is really helpful in tagging important files or organizing folders in special order.

Color icons are designed to appear normally as a color outline, which is filled in with solid color when selected. So we had to change to a different QuickDraw transfer mode because sticking with srcXor would have resulted in color flips: An icon would be blue normally, and orange when highlighted, because srcXor mode is just like making a negative of a color photograph. It looked bad.

You've noticed one of the side effects: Single-line features in icons are lost in the highlighting. Some interesting animation icons, such as those for *Red Ryder* and *MacPuke*, also lose their cleverness under *Finder* 6.0. Is it a bug? Perhaps it's just a consolation for people who don't upgrade to *Finder* 6.0.

MACPASCAL

Q. I'm writing about a problem in *Macintosh Pascal* that Apple has created but not been able to solve. For the last three years, we have been teaching Advanced Placement Computer Science at our school using *Macintosh Pascal*. In the spring of '87, we decided to spend the extra money to network our printers. We updated our software to Version 2.1 of *Macintosh Pascal*. After ordering the network hardware and five ImageWriter II printers, we discovered that although the program listings printed to the networked printers correctly, there was no way to direct program output through the network to the printers.

Apple discontinued the product entirely in October '87 — two full months before it delivered the network hardware to us. We have been left high and dry after investing thousands of unrefundable dollars. It seems to me that because the network hardware was developed and sold long before Version 2.1 of *Macintosh Pascal* was released, this problem should have been addressed by the programmers at Apple. At the very least, don't they still have some obligation to their customers to rectify the problem rather than simply drop it?

My only recourse is to hope someone can supply the information I seek — namely, is there something I can do with Version 2.1 or must a modification of the *Macintosh Pascal* code take place?

PAUL HALAC
HINSDALE, IL

A. Any Macintosh programmer will tell you that printing is one of the harder parts of writing a Macintosh application. Think Technologies, which wrote *Macintosh Pascal*, tried to make the process easier for *Macintosh Pascal* programmers to get their program listings, but when it comes to getting your application output on a printer, you've got to do it the way the pros do it — you have to call the routines in the Macintosh Print Manager.

There are two basic techniques: You can write your Pascal program to call the Print Manager to open a printing job, redirect QuickDraw output to the printer, call your routines that produce output, then close and print the job; or you can let your program draw into the window normally, then open the print job, use CopyBits to transfer the screen image to the printer, and close the print job. The first way will have better-quality text but be harder to write; the latter is easier to write but is limited to the size and resolution of the on-screen window.

Either way, you should read up on the Print Manager in *Inside Macintosh, Volumes 1 through 4*. If you go through the Print Manager, it won't matter what you're printing on: The same program will work for an ImageWriter, LaserWriter, or networked ImageWriter, whichever you have a driver for and choose with the *Chooser*.

If you're not doing graphic output (just printing text files), then just have the Pascal programs do writeIns into a disk file, then open and print them with *TeachText* or another word processor. Or you could use the *AppleTalk* manager to select a networked ImageWriter and send ASCII text to it, but that's a less versatile solution and is likely to end up in a dead end as the systems evolve. Speaking of which, you can rely on a discontinued product to continue doing what it's doing in your current setup, but it's highly unlikely that it will be compatible with new equipment (for example, *Macintosh Pascal* doesn't run on the Macintosh II). You might consider looking at Think's *Lightspeed Pascal* for a long-term solution for your programming lab.

MAKING A CASE FOR AN INTERNAL DRIVE

Q. I have a Macintosh Plus and a Macintosh SE with the 20-megabyte internal hard drive. I would like to buy a third-party 40-megabyte internal hard drive for the Mac SE. Is it possible to use the original 20-megabyte internal hard drive from the Mac SE on the Mac Plus as an external drive?

I don't think making an external case for the 20-megabyte hard drive will be a problem, but I need to know if the Mac SE drive will be compatible with the Mac Plus.

DENNIS A. MAQUILLING
BROOKLYN, NY

A. Standard disclaimer: Don't do this. It violates the warranties on almost everything, plus the voltages inside the Mac SE are dangerous.

Got it? Now the good news is that the internal drive on an SE is both software and electrically compatible with the Macintosh Plus. But there are a lot of little things to consider.

First, you'll need to make a custom cable to go from the DB-25 connector on the back of the Macintosh Plus to the 50-pin flat-ribbon connector on the SE hard disk. I'd use a 50-conductor ribbon cable with a 50-pin female header on the drive end and wired to a DB-25 male connector on the Mac Plus end. There's a diagram (Figure 12-8) in the *Macintosh Family Hardware Reference Manual*.

Second, you need a power supply for the drive. The drive draws its power from a separate 4-pin Molex connector, not from the SCSI bus, and the Plus doesn't have enough oomph to drive the external hard disk anyway; you'll need to supply your own +5V, +12V at 4 amps peak, and 12V.

Third, the notorious SE

fan is there for a reason: That little 3.5-inch disk drive generates some heat, so your case should include some kind of cooling fan.

Be sure to reinitialize the hard disk with *HD SC Setup*, Version 1.5 or later, after it's connected to the Plus. The Plus uses a different interleave factor than the SE and performance will suffer if you don't reformat the disk. It's a reasonable project if you know how to swing a soldering iron, deal with delicate hard disks, wire up a power supply, and build a case.

NEED SERIAL PINOUTS

Q. At work I have access to a lot of equipment: printers, hard disks, different brands of systems, terminals, and the like. I have a couple of modems, and I would like to be able to use them with my Mac.

Even though I am able to use them with PCs, I could not find technical information about the serial ports in the Mac. I was able to figure out a cable to work with my US Robotics modem with the old serial port on the Mac 512, but the one in the Mac Plus is different. I was able to get the information from the second volume of *Inside Macintosh;* I don't have the related part of the book referring to the Mac Plus. So I'm in a dead-end street. Either I buy the third volume or I buy a cable from an Apple dealer. I'd still rather build my own cable.

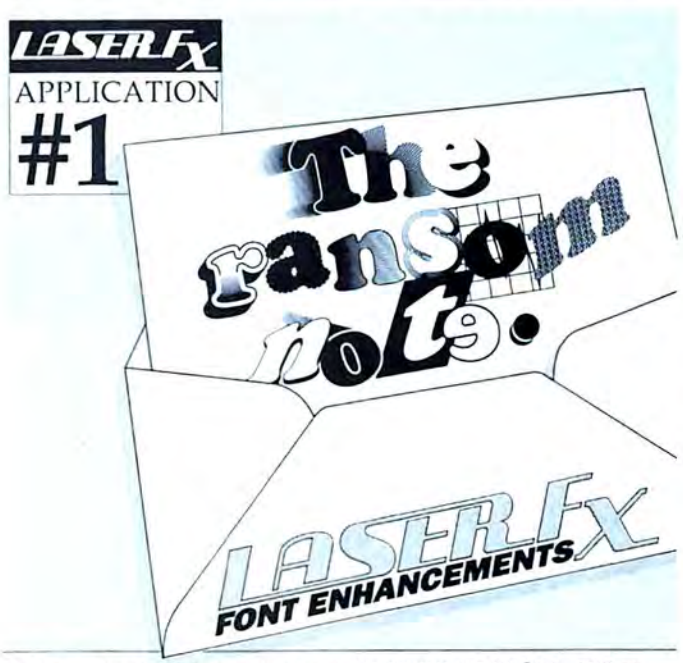
I would appreciate it if you could find me the pinouts of the modem port so I could build a cable to work with my US Robotics Password and the Mac Plus.

JOSE NEBRO
GARDEN CITY PARK, NY

A. The Plus, SE, and II, LaserWriter II NT and II NTX, ImageWriter II, and Apple IIGS all use the same pinout for serial I/O. These connections are documented in *Inside Macintosh, Volume IV.* The physical connector, called a minicircular 8 connector, is different from the DB-9 used on the 128K and 512K, but the signals are the same RS-422 signals, which are more reliable over longer distances than RS-232. The pinouts are as follows:

Pin	Signal
1	HSKo (Data Terminal Ready)
2	HSKi (Clear To Send)
3	TxD (Transmit Data)
4	GND (Ground)
5	RxD (Receive Data)
6	TxD+ (Transmit Data+)
7	No Connection
8	RxD+ (Receive Data+)

Looking at the end of a male minicircular connector, the pins are: On the top row from left to right 6, 7, 8; the middle row from left to right 3, 4, 5, with the space between 4 and 5; and the bottom row from left to right is 1, 2.



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TIP SHEET

COMPILED BY KRISTI COALE AND RUSSELL ITO

Found a trick, short cut, or smarter way to get something done with a program? Share your hints by sending them to The Tip Sheet, c/o *MacUser* 950 Tower Lane, 18th floor, Foster City, CA 94404. We pay at least $25 for every hint we publish, plus we'll print your name and hometown.

Every month we'll select one tip as the Tip of the Month. The person who sends in that tip will receive $100 for it.

FONTS

The following Control keys within Key Caps define special characters in the Chicago font that may be useful:

Control-Q (⌘)
Control-R (✓)
Control-S ()
Control-T (◆)

If, in the text of your document, you are using any other font besides Chicago, the symbol will appear as a box outline. To get the symbol in your text, highlight the Key Caps line and choose CUT or COPY from the Edit menu. Close the Key Caps, place the cursor where you want the character, and choose PASTE from the Edit menu. The box outline will appear. You must select the box and change your font to Chicago for that space.

LAWRENCE S. SEGAL
CHELMSFORD, MA

FINDER

With duplicate files, the *Finder* has difficulty locating them if the folder contains several folders and files. To fix this, I made the *Finder* look for my duplicates using my back-up code, `B/U`.

If you would like to do the same, copy your *Finder* and modify the copy using *ResEdit* (Resource Editor) as follows. To modify *Finder* to get `NameB/U` when duplicating files, open up the copy of Finder using *ResEdit*. Identify and double-click on the STR# resource. Identify STR# = 128 and double-click on it to open. Scroll down until you find `Copy of`. Highlight `Copy of` and backspace over it. `^C` will remain. Place your cursor between the blank space and the caret symbol (^) and backspace over the blank space. Type in `B/U` after the capital C — that is, a space plus the characters `B/U`, or whatever you choose to use to identify duplicate files. Close all windows and save the changes. Your files will now have the closing suffix `B/U` when you use the DUPLICATE FILE command from the menu.

CHARLES A. BLILEY
ROCHESTER, NY

READY, SET, GO! 4.0

This year's February issue contained a review of *Ready, Set, Go!* 4.0. In it, Mike Nikolich mentioned that "Another minor annoyance is when you reverse type out of dark images. With Version 4.0, you will not see how this effect looks until you actually print the page." Well, it turns out you can fill text blocks. Start by creating your text area. Type your text. Set your alignments, line spacing, tab settings, and so on as you desire. With your text block selected, choose SPECIFICATIONS and click on White Type. Again with your text block selected (it should be blank by now), go to the Fill menu and choose a fill of your liking. Voilà! White text on black, or rather, filled background.

Unfortunately, there's a problem with this approach. Because both the text and the fill meet against the edges of the text block, the white type will seem to "spill" into the paper. Happily, there's a solution. Draw a black-filled box (or whatever fill you used in the text block) that is larger than the text block. Send it behind. Your white text will reappear, quite visible, on top. Now, just resize the filled box to the width of the border you wish around the text block.

DANIEL F. CHAN
PASADENA, CA

SYSTEM

Regarding the *System* tip from Doug Hassman in your May '88 issue, his tip to return to the *Finder* from some applications or games does nothing on the SE or Mac II. To get back to the *Finder* on these machines, press the Interrupt switch; then instead of typing `G 40F6D8`, enter `G 409B24`. On the SE and Mac II, the instruction at `ROM 40F6D8` is a Return from Subroutine, which just puts you back where you started!

MARTIN KOCA
RIDGECREST, CA

I've found an easier way to maneuver around a file-selection list box than your March Tip of the Month,

FONTS



You can get ⌘, ✓, () and (◆) to appear in your text by creating them in Key Caps and pasting them into a document. Don't be alarmed if you see box outlines after pasting in the symbols. When you create them in Key Caps, you are using Chicago font. You must select Chicago for each of the symbols in your text.

and better yet, this works on a Plus. The up and down cursor keys will let you scroll up and down one selection at a time, and the left or right keys return you to the top of the list.

RENE TORRES
NEW YORK, NY

EXCEL

There's an easier way to calculate a root in *Excel* than Robert Roth's tip in your March issue. To extract the root of a number, just enter the formula `n^(1/x)`, where *n* is the number you want to extract the root from and *x* is the desired root.

JERRY FELLOWS
OCEAN CITY, WA

HYPERCARD

If you'd like an Appointment stack that'll always show the current day's card whenever you open the stack, do this. Make a copy of the Appointment stack contained in Stack Ideas, create three months' worth of cards, then open the stack's script via the Stack Info dialog box and enter this script:

```
  on openStack
if field "date" is
  the long date then
  exit openStack
 else find the long
  date
push card
hide message box
end openStack
```

The next time you open the stack, the current day's card will be on top. If it's not, see if there's a card with today's date. If there isn't, open the Message box, type `extend`, and press Return. That should do it. To check this, open the Message box again and enter `find the long date`, press Return, and the current day's card should appear.

CHRISTOPHER PLUMMER
NEW HOPE, PA

SUPERPAINT

If you have *SuperPaint* and an SE, there's an easy way to assign Command-key equivalents to document names. The commands will appear next to the name in the bottom half of the Windows menu and will function as normal Command keys. To do this, select SAVE. Then print the name of the document — let's say, Rover — as you normally would, but before saving it, type a / and the letter or symbol you want to use as the Command key just after the name (making the entry `Rover/G`, for instance), making sure that the letter or symbol doesn't already have a predetermined use (as in Command-S for SAVE). Then save, and quit *SuperPaint*. The next time you open the document, you'll find the Command key next to the name, fully operational.

JASON TORGERSON
BROOKLYN PARK, MN

MACDRAW

Sometimes I need to trace over a bitmapped illustration using either *Cricket Draw* or *MacDraw*. After I've imported the illustration through the *Clipboard* or *Scrapbook*, I draw an *X* or similar symbol at a specific location away from the drawing. Then, from the Symbols menu, I drag a box around the illustration and

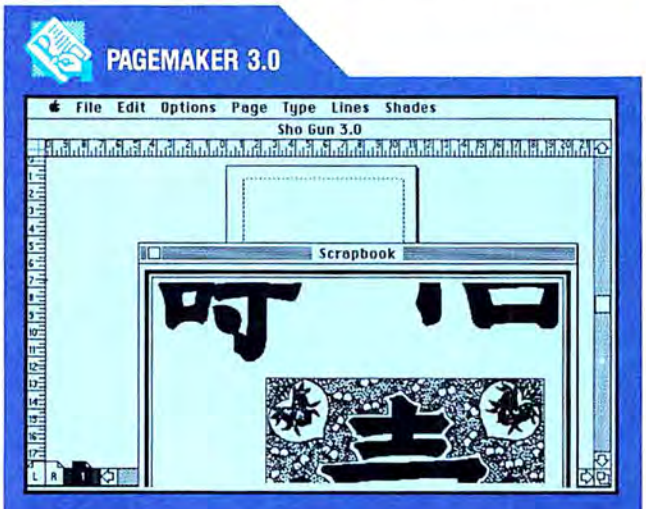
TIP OF THE MONTH

PAGEMAKER 3.0

Using *PageMaker* 3.0 and the Macintosh *Scrapbook*, you can quickly convert any text into a graphic. From a *PageMaker* document, select the desired text with the Selection tool (this won't work with the Text tool). Choose CUT or COPY from the Edit menu. Open the *Scrapbook* from the Apple menu, and go to the last item. Choose PASTE from the Edit menu. Close the *Scrapbook*. Choose PLACE from *PageMaker*'s File menu. This will give you a directory of available files in all your drives. Find the *System* folder, select it, and click on PLACE (this also works with placing *Scrapbook* items from non-startup disks). You will see a list of everything in the *System* folder. Find the *Scrapbook*, select it, and click on PLACE. You will then be returned to your document and will have a tool "loaded" with the number of the last item in the *Scrapbook*. (This could take several seconds or more, depending on the number and size of your *Scrapbook* items.)

You now have a choice. Continue clicking and you can release everything in the *Scrapbook*, starting with the last item. (Note: If you don't have enough memory, your system will crash as you release more items from your *Scrapbook*.) You can also stop the release of *Scrapbook* items by clicking on any tool in the Toolbox.

MARGO MATTHEW
VIRGINIA BEACH, VA



To turn text into a graphic, you can use *PageMaker* 3.0 and the Macintosh *Scrapbook*. Once you've selected the document, cut or copy it from the screen, open the *Scrapbook*, and select PASTE. The document, which is now a graphic, should appear within the screen of the *Scrapbook*.

include the *X* and choose GROUP from the Format menu. I can then trace over the illustration, drag the grouped section away, and be left with an outline of the drawing. The *X* works as a handle to pick the bit-mapped image and separate it from the traced PostScript version.

ALEX SERESSIOTIS
NEW YORK, NY

CRICKET DRAW

I noted the following problem with *Cricket Draw* when printing special characters with the Text tool. Some special characters appear on the screen but don't print on the LaserWriter or print as spaces. To print the character ∑ from Helvetica, for example, you normally key in Option-W. This procedure works in *Microsoft Word* 3.01 and *SuperPaint*, but it doesn't work in *Cricket Draw*. The ∑ is displayed on the screen but doesn't print in *Cricket Draw*.

Cricket Software's technical support says the problem occurs because *Cricket Draw* outputs PostScript files, and no PostScript image exists for a Helvetica symbol ∑. Cricket Software's fix is to type a Shift-S and change the font to Symbol, which displays a ∑ on the screen and prints the ∑ on the LaserWriter. This problem exists for several special characters in various fonts. It's one of those undocumented problems, where your only recourse is to call the software publisher's hot line for assistance. I might add that in my experience, Cricket Software has one of the best technical-assistance hot lines in the industry.

VINCE SWANSON
BELMONT, CA

When using *Cricket Draw* with the snap-to-grid on to create flowcharts, I've found that creating lines with arrowheads can cause some problems. When you create a line, it snaps to the nearest coordinates (depending on the tick marks you specify for the rulers). The problem occurs when you add an arrowhead to the line, and the length of the line is no longer a whole number. The fix is to set the number of tick marks on both rulers to 16. Draw the line 1/16-inch shorter than you really want it, then add the arrowhead. For arrowheads at both ends of the line, draw the line 1/8-inch shorter than you want it to appear with the arrowheads. The displayed grid can be any number of lines per inch because it doesn't affect the snap-to increments.

VINCE SWANSON
BELMONT, CA

MAC

To keep your mouse on the ball, check the ball your mouse is on. If your mouse sticks and hesitates, even after a thorough cleaning, it may be the ball that needs replacing. Take it out and examine it closely. If you see any small bumps or irregularities, you've found the culprits. You can get a new ball from your Apple dealer (Apple part number 699-8001 for the Plus or 699-8038 for the ADB) for about $9 — much less than the $99 Apple demands for a new mouse.

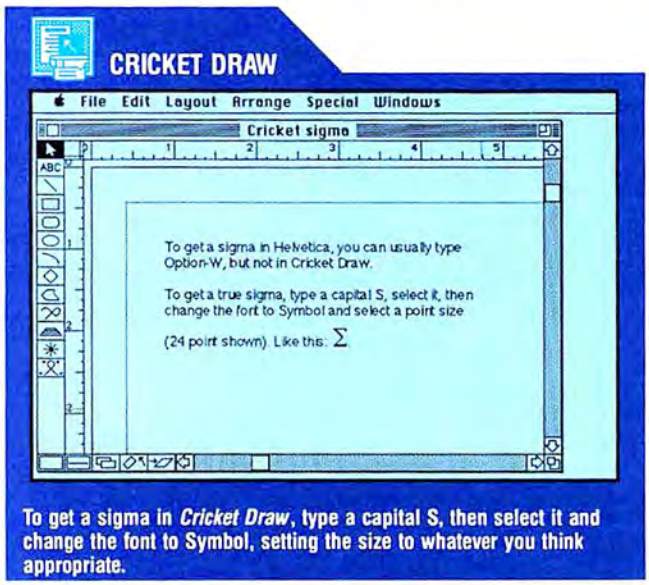
JOEL B. SMITH
CHARLOTTESVILLE, VA

WORD 3.0X

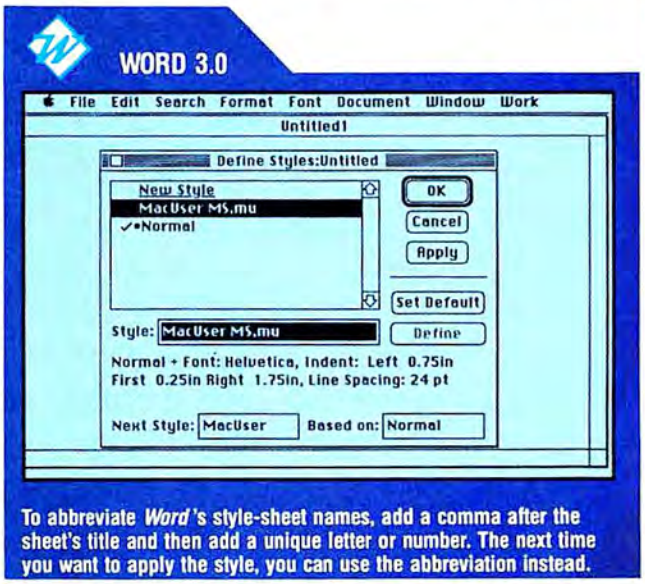
To find the next occurrence of a font or character format, put the insertion point within an example of whatever format you're searching for and type Command-Option-Q. *Word* will then search for the next appearance of text with the same formatting as that around the insertion point and select it.

JOEL ABRAMS
CAMBRIDGE, MA

To make using style sheets faster, you can add unique letters or numbers to your style-sheet names that let you call them up by these



To get a sigma in *Cricket Draw*, type a capital S, then select it and change the font to Symbol, setting the size to whatever you think appropriate.



To abbreviate *Word*'s style-sheet names, add a comma after the sheet's title and then add a unique letter or number. The next time you want to apply the style, you can use the abbreviation instead.

characters rather than the sheet's full name. Open the Define Styles dialog box, select a style sheet, type a comma after the sheet's name, then enter the character you want to use. The next time you want to apply this style, just type the abbreviation.

LUC THERRIEN
EDMONTON, ALBERTA

Converting text into a graphic just to put a box around it in *Word* 3.0X, as suggested in the March '88 issue, is an awkward solution that also prevents you from doing any further editing or formatting of the text. Here are two better ways to get the same result.

If the text isn't justified, select all but the last paragraph to be boxed and then use the CHANGE command to replace all the paragraph markers (^p) with line returns (^n). This tricks *Word* into thinking it's looking at one large paragraph, so you can now apply whatever formatting you like from the Paragraph Dialog box.

You can do the same thing with justified text, but to prevent partial lines from spreading across the page, replace the normal spaces with nonbreaking fixed spaces (Option-spacebar or Command-spacebar).

For paragraphs that have different margins or indents, you can use Side by Side formatting to create your boxes. Insert a graphics box in its own paragraph above the paragraphs to be boxed, making sure that its left margin lies to the left of the text you want to enclose. Size the box to the appropriate width and length, and then add whatever outline formats you wish. Select the box and the paragraphs and apply the Side by Side paragraph format. You can check the results in Page Preview and resize the box as necessary.

ROBIN STUBBART
COLUMBUS, OH

There are times when you may want to accent *Word* paragraphs with a background screen. The following PostScript command, placed before a paragraph, will do the job:

```
.para. 0 0 moveto 0 1000 rlineto 1000 0 rlineto 0 -1000 rlineto closepath gsave .97 setgray fill grestore
```

This instruction must be in PostScript style, which is one of *Word*'s automatic styles and can be applied by entering PostScript in the Define Styles dialog box. The value 1000 will handle any paragraph up to 13 inches square, but if you want a smaller area, which will also print faster, you can pick a more realistic value by multiplying the number of inches by 72 and using that result. You can adjust the intensity of the gray scale by changing the `.97` next to `setgray`. The closer this value is to 1, the lighter the screen. *Word* considers the space above and below your paragraph to be part of it, so some white space may get filled unless you use the PARAGRAPH command and set this space to zero.

CHARLES V. BALCH
ST. THOMAS, USVI

KEYBOARD

To speed up FIND and PRINT from the keyboard, place colored adhesive tape on the appropriate keys. One color for command and F and another for command and P. You can then scan the keys by color.

JOHN GALLIVAN
SANTA ANA, CA

WORD 3.0X

This instruction must be in PostScript style, which is one of Word's automatic styles and can be applied by entering PostScript in the Define Styles dialog box. The value of 1000 will handle any paragraph up to thirteen inches square, but if you want a smaller area, which will also print faster, you can pick a more realistic value by multiplying the number of inches by 72 and using that result. The intensity of the gray scale can be adjusted by changing the .97 next to setgray. The closer this value is to 1, the lighter the screen. Word also considers the space above and below your paragraph to be part of it, so some white space may get filled unless you use the Paragraph command and set this space to zero. This screen is linked to your text and will resize itself as you edit.

Putting a screen behind *Word* text is easy if you precede the text with the proper PostScript instruction. The resulting screen is linked to your text and will resize itself when you edit.

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Command.

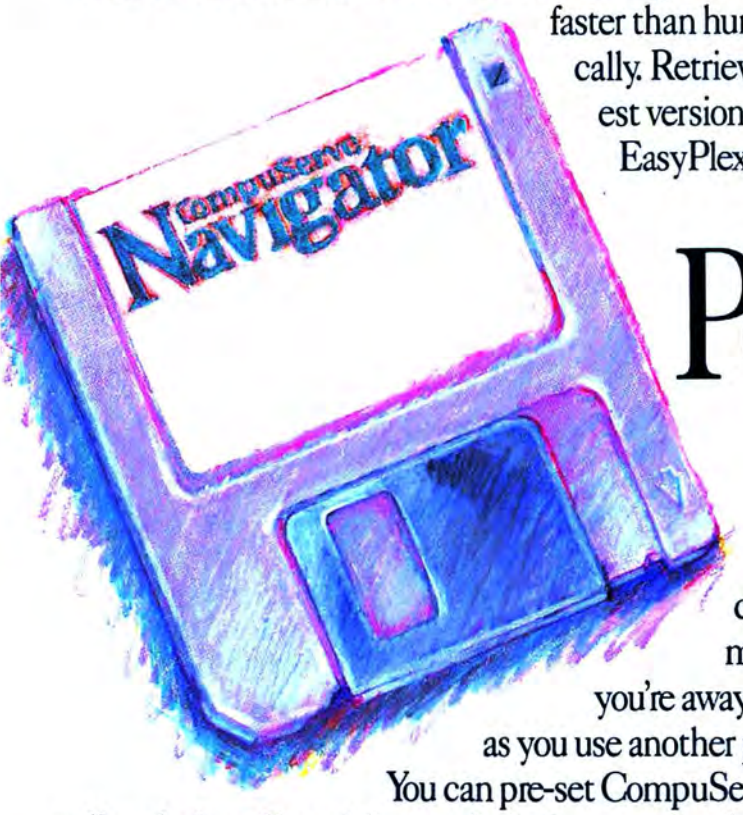
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by Michael Swaine

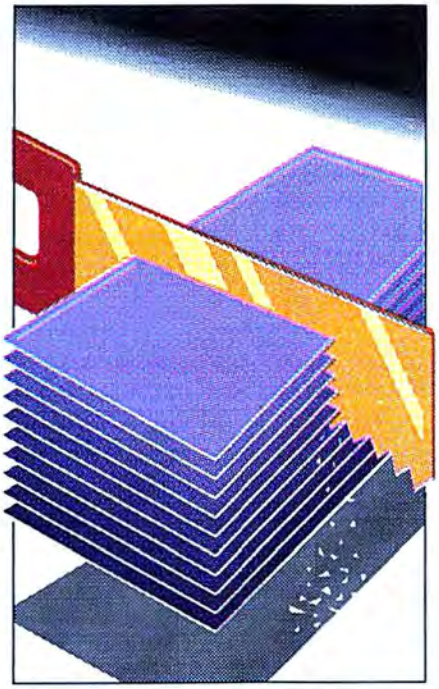
Profiles in Code

It's not the writing that's hard; it's figuring out what you wrote that was wrong. That's true of any writing and it's true of writing *HyperCard* scripts. If you've begun scripting in *HyperCard*, you've probably learned that it's fairly easy to write a script that does *something*, and it's damnably hard to fix the program afterward so that it does what you meant it to do. You may not have discovered one of the most important tools for finding problems in your scripts: profiling.

Profiling is a way of assessing how efficient your programming is. It does this by monitoring the number of times each line or selected lines of a program are executed or the amount of time that sections of code consume in running. It's also an aid in debugging, since finding sections of code that perform differently from expectations can help you home in on errors.

Professional programmers know about profiling. They may have a profiler program that they use regularly, and they undoubtedly use profiling techniques daily. Profiling their code helps them identify subtle programming errors, find bottlenecks in the operation of their programs, and fine-tune critical code segments.

At the end of this column you'll find a fairly crude profiler that can be used to profile individual *HyperCard* handlers. Before you use it, however, a warning is in order. Standalone profilers require some odd programming syntax and can get awfully verbose. The profiler you'll find here is a stripped-down version that won't do a lot. To have increased the number of capabilities would have resulted in a listing that no one would want to key in. The compromise between power and length results in a script you won't be able to use as a serious profiling utility. What you will be able to do with it is to key it in and use it to explore the process of profiling your code.



JIM LUDTKE

> You can't just bracket lines of your scripts willy-nilly, because some lines are not standalone commands but parts of structures.

Despite what I just said, profiling can be a very simple thing. Much of what profiler programs do can be accomplished by simply adding a few lines of code to the script you want profiled. Here's how you do that, and why.

The basic techniques are extremely simple. To time a section of code, precede it with a command that starts a timer and follow it by commands that read and report the timer's value. To count the number of times it is executed, add 1 to a counter. For example, after initializing commandCounter cC to 0:

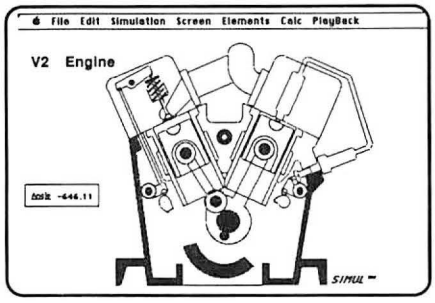
```
put the ticks into cT
(commands to be timed)
add 1 to cC
put the ticks-cT into cT
put cT && cC
```

There are some almost self-evident exceptions. You can't just bracket lines of your scripts willy-nilly, because some lines are not standalone commands but parts of structures. For example, a statement beginning with the word "if" or "repeat" or "end" can't be bracketed this way because the profiling commands following these terms would not (necessarily) be executed the same number of times as the statements before them.

But this is not a serious problem. The time taken by such lines is trivial, and it's not the number of times that the repeat itself is executed that matters but the number of times that lines within the scope of the repeat are executed.

That's simple enough, but it's just not practical to bracket every bracketable line of your scripts with this kind of baggage. You wouldn't be able to see the real program under all the profiling lines. And you'd spend even more time debugging typos in the added profiling code. What you can do is to answer some specific questions for yourself with a few ad hoc profiling lines like these. That's useful. It can show the difference in efficiency between two ways of solving the same problem, such as two different scripts

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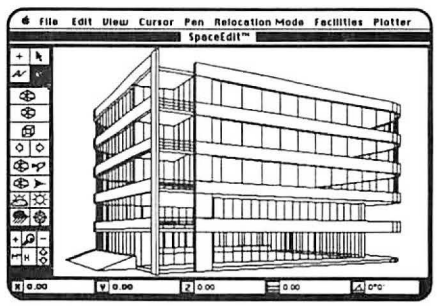


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for sorting cards. It can also identify bugs, but only if you already have a good idea where to look. To use profiling for general debugging and optimizing purposes, you need to profile more than a few selected lines. That's where profiler programs come in.

A truly sophisticated *HyperCard* script profiler would reside in memory along with the script, observing the script as it ran and building a report that could be printed, saved, or loaded into a field when both programs finished. While no such sophisticated

```
-- Script   Simple Profiler
-- Author:  Mike Swaine
-- Version: 1.0 5/1/88
-- This script profiles the handler for message
-- theMessage in the script of object theObject when
-- theObject's script is invoked. It reports, for most
-- lines of the handler, the number of times the line
-- was executed and the total execution time used by
-- the line. It works by modifying the handler to
-- report on itself as it runs.
-- Its intended use is as a learning and debugging tool
-- for present and future HyperCard stack developers.
-- It should be implemented as a card script, and it
-- requires two scrolling card fields, one named
-- profileTemp for temporarily holding the target
-- script, one named report for the profiling report.
-- Because the profiler modifies the script it's
-- profiling, it's also wise to create a button with
-- the following short script:
--   on mouseUp
--     global theObject
--     set the script of theObject ¬
--       to card field profileTemp
--   end mouseUp
-- If the profiler crashes, this button will
-- repair the script being profiled.
-- Script Simple Profiler is placed in the public
-- domain and may be used freely.
--
-- The user invokes this handler by typing the word
-- "profile" into the message box. It asks what object
-- and message handler to profile, modifies the
-- selected handler to produce the profiling output,
-- and invokes it. The last thing that the modified
-- handler does is to undo its modifications.
on profile
  -- Some initialization details. For simplicity of
  -- exposition, this script uses global variables.
  -- Generally it's best to avoid them.
  global theHandler, theLine, theMessage, theObject, ¬
  handlerStart, handlerEnd, theScript
  put empty into card field profileTemp
  put empty into card field report
  set numberFormat to "000000.##"
  -- Ask the user for the object and message handler
  -- to be profiled.
  userInput
```

```
-- Copy the script of theObject into a container to
-- modify. Save a copy of it for restoring it to its
-- original form, in a field so it's available even
-- if the program crashes.
put script of theObject into theScript
put theScript into card field profileTemp
-- Extract the handler for theMessage from theScript
-- and insert profiling commands into the handler.
getHandler
insertCmds
-- Put the modified handler into the script of
-- theObject, in the place of the original handler.
  stuffHandler
  -- Invoke the handler.
  send theMessage to theObject
end profile

-- This handler prompts the user for the object whose
-- script is to be used, and the message whose handler
-- is to be profiled.
on userInput
  global theMessage, theObject
  ask "What object?" with "card button profTest"
  put it into theObject
  if it is empty then exit to HyperCard
  ask "What handler?" with "mouseUp"
  put it into theMessage
  if it is empty then exit to HyperCard
end userInput

-- This handler extracts the chosen handler
-- from the chosen script.
on getHandler
  global theScript, theMessage, handlerStart, ¬
  handlerEnd, theHandler
  -- Examine each line of the script.
  repeat with i=1 to the number of lines of theScript
    put line i of theScript into linei
    -- Locate the first line of the handler.
    if word 1 of linei is in "on,function" and word 2 ¬
    of linei is theMessage then put i into handlerStart
    -- Locate the last line of the handler.
    if word 1 of linei is "end" and word 2 of linei ¬
    is theMessage
    then
      put i into handlerEnd
      exit repeat
    end if
  end repeat
  -- Extract the handler.
  put line handlerStart to handlerEnd of theScript ¬
  into theHandler
end getHandler

-- This monster handler inserts the profiling commands
```

profiler exists today, it's possible to develop a less ambitious — and still useful — profiler. All that this less ambitious profiler has to do is to automate the process I described above, making a copy of your script, inserting profiling commands, and running the resulting (much longer) script. It would need a more sophisticated method for reporting its results, of course.

This month's script is a very simple profiler of the type just described. Although you would often profit more by doing the analysis yourself than by having a program do it for you, profilers can take some of the tedium out of debugging and optimizing your code and can provide clues for what to profile next. If you use this month's script to begin developing profilers of your own, you'll find that there are some kinds of statements that the stripped-down version here can't handle. It's not very difficult to extend it to handle them.

The profiler script focuses on a single handler, giving a more or less line-by-line report on time usage and the number of times each profilable line is executed. If you're examining a complex system with several interconnected handlers, run the profiler on one handler and get clues about what handler to examine next. A line that takes a lot of time probably calls a handler that should be the next target for profiling.

I ran the profiler on a test handler that executes the same process in three different ways, using three other handlers (loops1, loops2, and loops3). It reported these results:

```
Profile of
card button "profTest"
handler loops
```

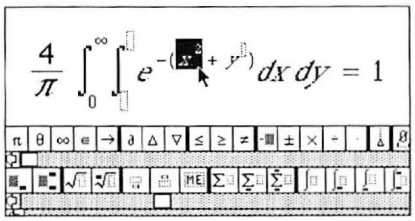
Time	Hits	Command
167	1	loops1
162	1	loops2
178	16	loops3
995	21	Totals

The handler loops2 is the fastest. Handler loops3 is simpler than the others but achieves the same effect by being called sixteen times. This turns out to be a poor strategy.

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```
-- into the handler. It is hard to follow because it is
-- full of commands that write commands, but that is
-- also what makes it work.
on insertCmds
  global theHandler, theLine, theMessage, theObject,¬
  handlerStart, handlerEnd, theScript
  -- Insert commands to title the report
  -- and start the timer.
  put 1 into theLine
  put "put " & quote & "Profile of:" & quote & " into¬
  card field report" into theCmd
  insertAfter theCmd
  put "put return & the name of me after card field¬
  report" into theCmd
  insertAfter theCmd
  put "put return & " & quote & "handler " & ¬
  theMessage & quote & " & return after card field¬
  report" into theCmd
  insertAfter theCmd
  put "put 0 into totalTime" into theCmd
  insertAfter theCmd
  put "put 0 into totalEx" into theCmd
  insertAfter theCmd
  put "repeat with iter=1 to " & the number of lines ¬
  of theHandler into theCmd
  insertAfter theCmd
  put "put 0 into line iter of cmdTime" into theCmd
  insertAfter theCmd
  put "put 0 into line iter of cmdEx" into theCmd
  insertAfter theCmd
  put "end repeat" into theCmd
  insertAfter theCmd
  put 2 into iterx
  put "put " & quote & "-----------------------------¬
  --------------------" & quote & " & return after ¬
  card field report" into theCmd
  insertAfter theCmd
  put "put " & quote & "Time    Hits      Command" &¬
  quote & " & return after card field report" ¬
  into theCmd
  insertAfter theCmd
  put "put " & quote & "-----------------------------¬
  --------------------" & quote & " & return after ¬
  card field report" into theCmd
  insertAfter theCmd
  add 1 to theLine

  -- Insert commands to time all lines of the handler.
  repeat while theLine < the number of lines of¬
  theHandler
    if line theLine of theHandler contains "repeat" ¬
    or line theLine of theHandler contains "if" ¬
    or line theLine of theHandler contains "then" ¬
    or line theLine of theHandler contains "else"
    then
```

```
    -- Don't time repeats & ifs.
  else
    put "--" into theCmd
    insertBefore theCmd
    put "put " & iterx & " into iter" into theCmd
    insertBefore theCmd
    put "put the ticks into thisTime" into theCmd
    insertBefore theCmd
    if line theLine of theHandler contains quote
    then
      put "put " & quote & "  " & ¬
      deQuote(line theLine of theHandler) ¬
      & quote & " into line iter of cmds" into theCmd
      insertAfter theCmd
    else
      put "put " & quote & "  " & line theLine of¬
      theHandler & quote & " into line iter of cmds"¬
      into theCmd
      insertAfter theCmd
    end if
    put "put the ticks - thisTime into thisTime" ¬
    into theCmd
    insertAfter theCmd
    put "put (line iter of cmdTime) + thisTime into¬
    line iter of cmdTime" into theCmd
    insertAfter theCmd
    put "add thisTime to totalTime" into theCmd
    insertAfter theCmd
    put "add 1 to line iter of cmdEx" into theCmd
    insertAfter theCmd
    put "add 1 to totalEx" into theCmd
    insertAfter theCmd
    add 1 to iterx
  end if
  add 1 to theLine
end repeat

-- Report command times.
put "put 6 into reportLine" into theCmd
insertBefore theCmd
put "repeat with iter=1 to " & the number of lines ¬
of theHandler into theCmd
insertBefore theCmd
put "get line iter of cmds" into theCmd
insertBefore theCmd
put "put it into cmd" into theCmd
insertBefore theCmd
put "get line iter of cmdEx" into theCmd
insertBefore theCmd
put "put it into cmdX" into theCmd
insertBefore theCmd
put "get line iter of cmdTime" into theCmd
insertBefore theCmd
put "put it into cmdT" into theCmd
insertBefore theCmd
```


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```
  put "if cmdT is empty then exit repeat" into theCmd
  insertBefore theCmd
  put "if cmdT is not 0" into theCmd
  insertBefore theCmd
  put "then" into theCmd
  insertBefore theCmd
  put "put cmdT after card field report" into theCmd
  insertBefore theCmd
  put "put " & quote & "  " & quote & " & cmdX after¬
  card field report" into theCmd
  insertBefore theCmd
  put "put cmd & return after card field report" ¬
  into theCmd
  insertBefore theCmd
  put "add 1 to reportLine" into theCmd
  insertBefore theCmd
  put "end if" into theCmd
  insertBefore theCmd
  put "end repeat" into theCmd
  insertBefore theCmd

  -- Insert commands to report totals.
  put "add 1 to reportLine" into theCmd
  insertBefore theCmd
  put "put " & quote & "------------------------------¬
  --------------------" & quote & " & return into ¬
  line reportLine of card field report" into theCmd
  insertBefore theCmd
  put "add 1 to reportLine" into theCmd
  insertBefore theCmd
  put "put totalTime & " & quote & "  " & quote & ¬
  " & totalEx & " & quote & "    Totals" & quote & ¬
  " &return into line reportLine of card field report"¬
  into theCmd
  insertBefore theCmd

  -- Insert command to rebuild the handler
  -- from the saved copy.
  put "set the script of me to card field profileTemp"¬
  into theCmd
  insertBefore theCmd
end insertCmds

-- This handler deals with the problem of constructing
-- a line of HyperTalk that itself refers to a line of
-- HyperTalk that contains quote marks. It constructs
-- an oblique allusion to the quotes that will be
-- interpreted properly at the several levels of
-- interpretation. Ignore it.
function deQuote aLine
  put offset(quote,aLine) into leftQuoteLoc
  put char leftQuoteLoc+1 to ¬
  (the number of chars of aLine) of aLine into endLine
  put leftQuoteLoc + offset(quote,endLine) ¬
  into rightQuoteLoc
```

```
  put char 1 to leftQuoteLoc-1 of aLine into left
  put ntc(34) & ntc(32) & ntc(38) & ntc(32) & "quote" ¬
  & ntc(32) & ntc(38) & ntc(32) into subst
  put char leftQuoteLoc to ¬
  (the number of chars of aLine) of aLine into right
  put left & subst & right into aLine
  add 12 to rightQuoteLoc
  put char 1 to rightQuoteLoc of aLine into left
  put ntc(32) & ntc(38) & ntc(32) & "quote" & ntc(32) ¬
  & ntc(38) & ntc(32) & ntc(34) into subst
  put char rightQuoteLoc+1 to ¬
  (the number of chars of aLine) of aLine into right
  put left & subst & right into aLine
  return aLine
end deQuote

-- This function is an alias: it merely renames an
-- existing function to something more convenient
-- (i.e., shorter).
function ntc x
  return numToChar(x)
end ntc

-- This handler replaces the modified handler
-- in the script.
on stuffHandler
  global handlerStart, handlerEnd, theScript,¬
  theHandler, theObject
  -- Remove the existing handler.
  repeat with i=handlerStart to handlerEnd
    put empty into line i of theScript
  end repeat
  -- Replace it with the modified handler.
  put theHandler & return before line handlerStart ¬
  of theScript
  -- We've been working with a copy of the script; now
  -- set the real script to the modified one's content.
  set script of theObject to theScript
end stuffHandler

-- This handler inserts theCmd before theLine in
-- theHandler and adjusts theLine.
on insertBefore theCmd
  global theHandler, theLine
  put theCmd & return before line theLine of theHandler
  add 1 to theLine
end insertBefore

-- This handler inserts theCmd after theLine in
-- theHandler and adjusts theLine.
on insertAfter theCmd
  global theHandler, theLine
  put return & theCmd after line theLine of theHandler
  add 1 to theLine
end insertAfter
```


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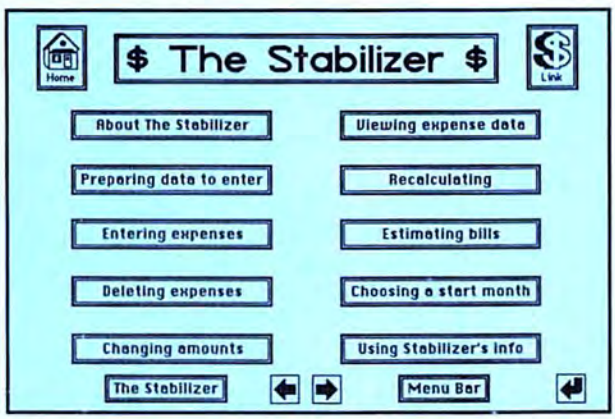
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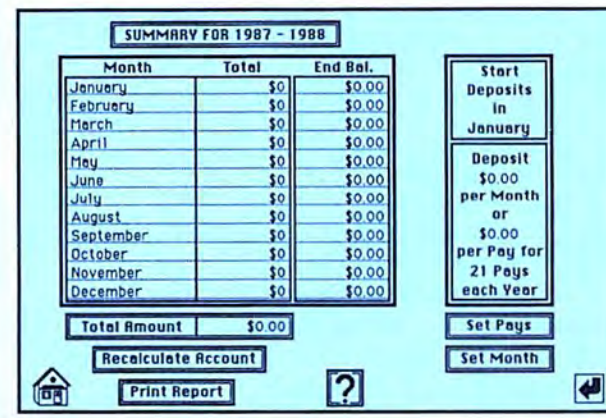
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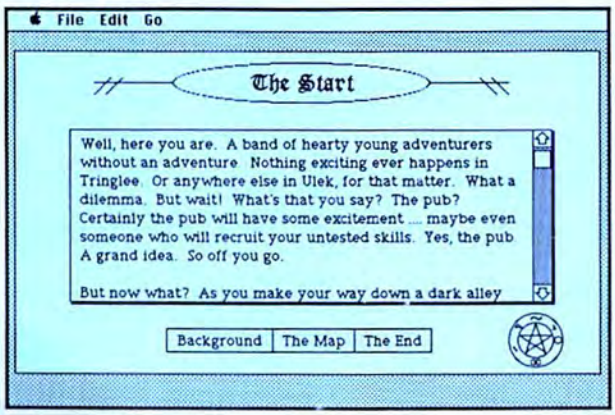
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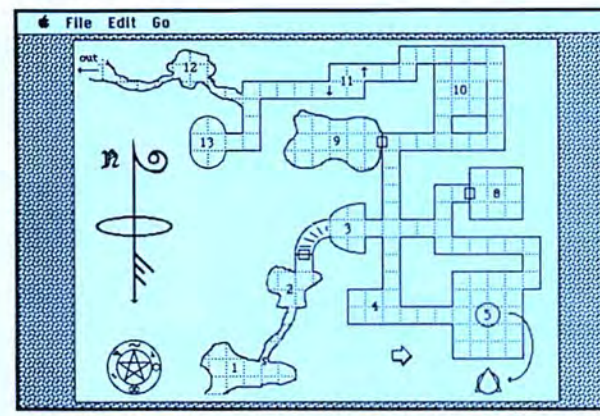




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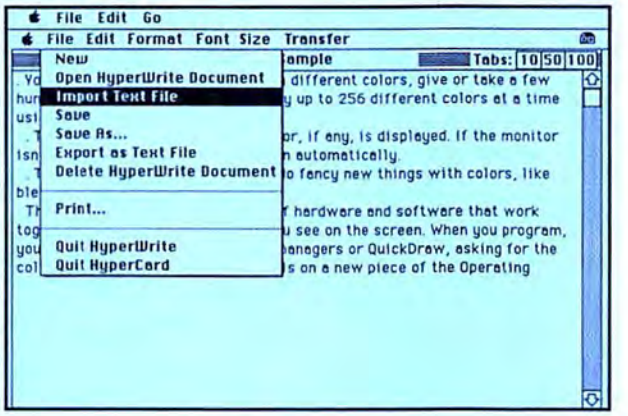


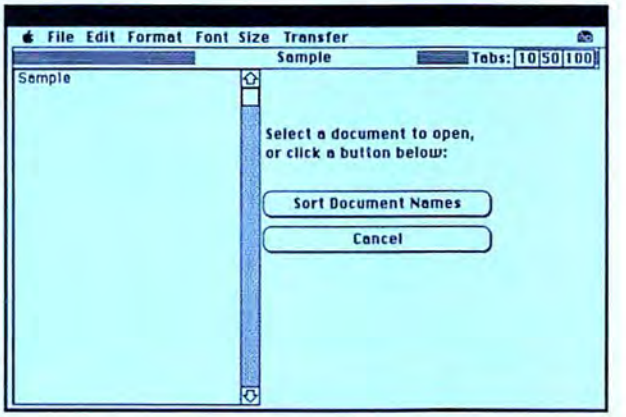


If you don't have advanced *Dungeons & Dragons* rules, forget it. If you do, you might enjoy playing this adventure game. *Wizard's Deception* is available for $5 from Chip Howland, 7409 W. 83rd St., Bloomington, MN 55438.

The Write Stuff

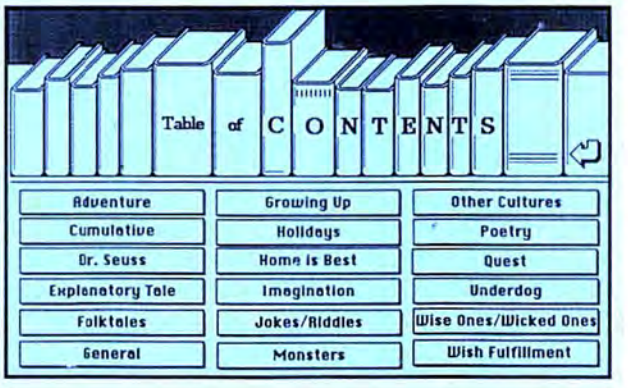
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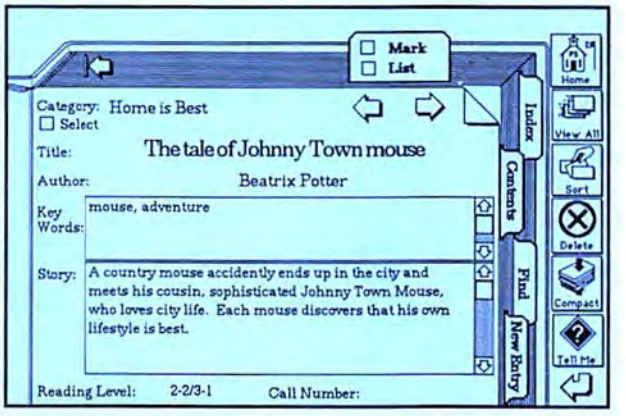




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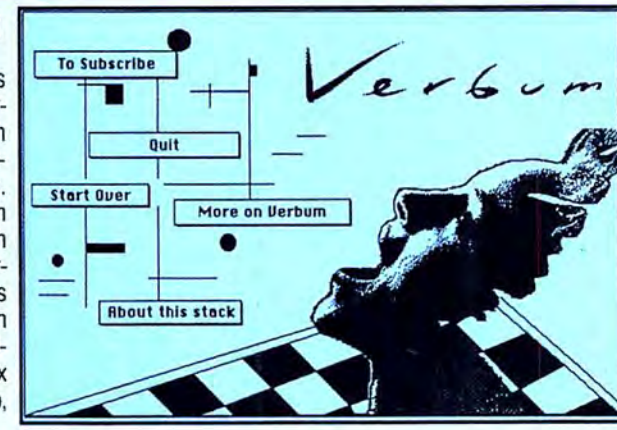
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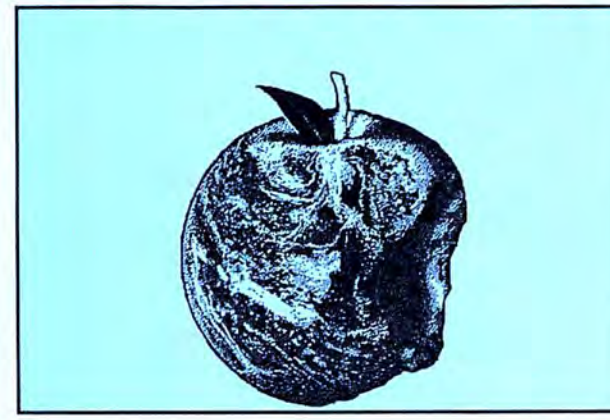
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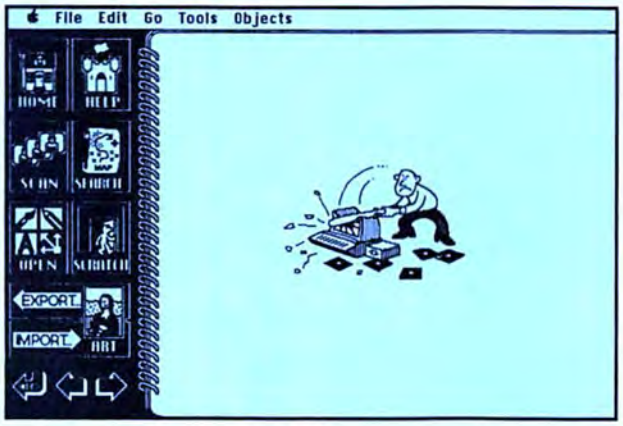
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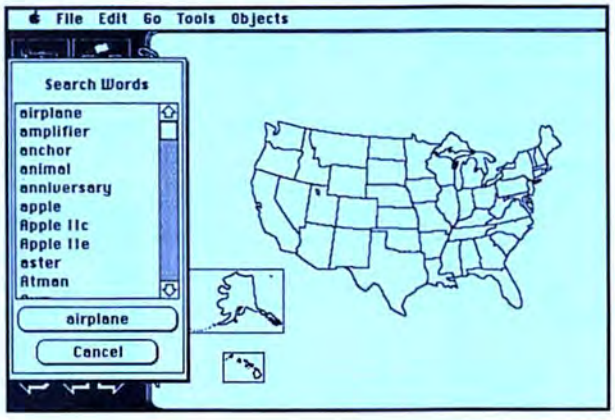




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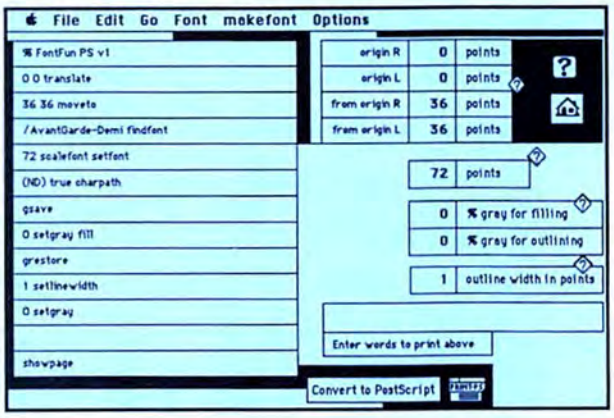
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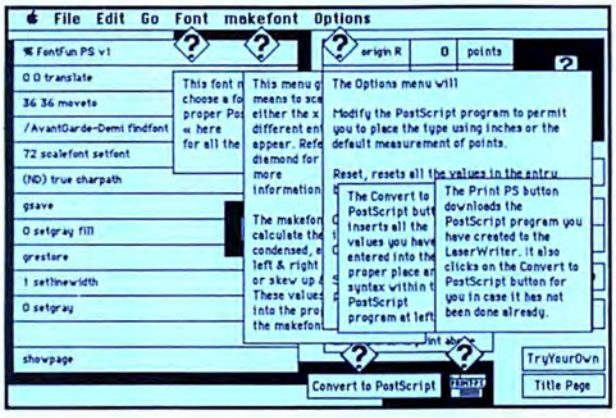




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Have you often wished for a personal assistant to help in picking software? These MiniFinders may not breathe and move, but they do tell you what products are hot and, better, what these products do. Each of these items has been carefully reviewed and selected by the *MacUser* editorial staff. Each has been rated in increments of half mice, from 1 to 5. Ratings are relative within categories, and they can change as categories expand and new products advance the state of the art. You won't see many low ratings or bombs, since we're telling you about the cream of the crop, but we will warn you about the really bad products so that you don't spend your money on them. Red names indicate this month's additions. The letters at the end of the entries indicate whether a product is copy protected (CP) or not (NCP). If a product has been reviewed or Quick Clicked in *MacUser*, the date of the review is shown. Eddy (Editor's Choice) Award winners are noted with a ★ and the year in which they won prizes for an excellent product. Next time you have to find products you can count on, count on *MacUser*!

MINIFINDER INDEX

BUSINESS ACCOUNTING 266
COMMUNICATIONS 273
DATABASES 268
DESK MANAGERS 279
DESKTOP PUBLISHING 272
EDUCATION 288
ENTERTAINMENT 289
GRAPHICS & DESIGN 269
HARDWARE & ACCESSORIES 295
HYPERCARD 276
INTEGRATED SOFTWARE 266
LANGUAGES 286
MUSIC 295
NUMBER CRUNCHING 268
ORGANIZATIONAL TOOLS 277
PERSONAL FINANCE 266
SYSTEM SOFTWARE 276
UTILITIES 280
WORD PROCESSORS 274

INTEGRATED SOFTWARE

Jazz provides well-integrated modules for word processing, graphs, ★★★★ worksheets, databases, and communications. HotView is best feature. Requires 512K+ and external drive. Version 1A requires 400K drive. $395. Lotus, 55 Cambridge Parkway, Cambridge, MA 02142. CP (Prem)

Microsoft Works is an integrated application that includes word ★★★★½ processing, database, spreadsheet, and telecommunications functions. The telecommunications module includes both background up- and downloading. $295. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Oct 86) ★'86 Eddy

Trapeze (version 2.0) is a powerful presentation worksheet that ★★★★½ combines mathematical functions and graphic representation. The interface, which consists of an icon bar, can be awkward to use. Mac II and color supported. $395. Access Technology, 555C Heritage Harbor, Monterey, CA 93940. NCP (Dec 87)

BUSINESS ACCOUNTING

Accountant, Inc. V. 2.0 integrates accounts payable, accounts ★★★ receivable, general ledger, and inventory modules. Prints checks, purchase orders, invoices, customized reports. Bare bones accounting system limited in size and scope, but ease of use and integration make it suitable for small businesses. Requires 512K+. $299. SoftSync, 162 Madison Ave., New York, NY 10016. NCP (Oct 87)

Back to Basics Accounting is a powerful double-entry accounting ★★★★ software package for the small business user with GL, AR, and AP modules. Exhaustive manual with numerous examples. Report capabilities are excellent. $199. Peachtree, 4355 Shackleford Rd., Norcross, GA 30093. NCP (May 87)

BPI General Accounting is an easy-to-use system. Six journals, ★★★★ AR, AP, Payroll, and GL on one disk. Offset amounts automatically post to ledgers. Up to 8000 accounts. Detailed records, wide range of reports. *Switcher* and HFS compatible. $249. Requires 512K+. BPI Systems, 3001 Bee Cave Rd., Austin, TX 78746. NCP (Aug 86)

Insight is a high-powered accounting program for the small-to- ★★★★½ medium-sized business. Modules include Accounts Receivable, Payables, and General Ledger; others are in the works. Requires 512K and hard disk. $595. Layered, 529 Main St., Boston, MA 02129. NCP (Dec 86) ★'86 Eddy

Rags to Riches integrated accounting modules (General Ledger ★★★★½ and Accounts Receivable) uses Mac interface to the hilt. Information entered in one window automatically transfers. Detailed, flexible report options. Very easy to use, but it can be confusing with several windows on screen. Requires 512K+ and printer. $199.95 per module. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Dec 85)

Rags to Riches Professional Billing tracks and bills professional ★★★★ services. Batches activities for individual timekeepers. Use as standalone, or integrate with *R to R* modules. Requires 512K+, printer. $399.95. Chang Labs, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Feb 87)

Strictly Business General Ledger features clear, well-outlined set- ★★★★ up procedures and operations. Very flexible, up to 99 profit centers with up to 100 departments each, and customized reports. Program print spools. Requires 512K+, printer and external drive. $395. Future Design, 13681 Williamette Dr., Westminster, CA 92683. NCP (Dec 85) ★'85 Eddy

PERSONAL FINANCE

Dollars & Sense is a bookkeeping program. Easy to use, with a ★★★ good manual and excellent on-screen help. Will handle up to 120 separate accounts or money categories. Uses standard double-entry accounting techniques. Will work on 128K. $149.95. Monogram, 8295 S. La Cienega Blvd., Inglewood, CA 90301. CP (Mar 87)

Easy Checks puts your check register (or credit card records or any ★★ other simple financial account) into a desk accessory. Creating formats is rough, can't save reports to disk and there's no LaserWriter support. Requires 512K+. $44.95. PAR Software, PO Box 1089, Vancouver, WA 98666. NCP (Apr 88)

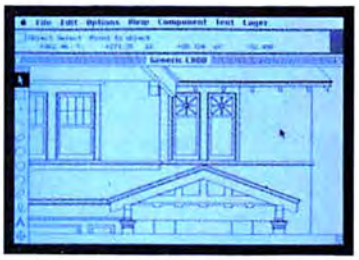
MacInTax is an excellent tool for preparing tax forms. Intuitive, easy ★★★★★ to use. Accepts data from leading personal finance programs. Good built-in help. Liberal upgrade policy for current owners. California forms set also available. $119 federal; $65 California. SoftView, 4820 Adohr Lane, Suite F, Camarillo, CA 93010. NCP (Mar 87) ★'86 Eddy

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Market Pro is a comprehensive portfolio management program for
★★★★ the generation of fundamental data as well as technical charts and graphs. Requires 512K+, external drive, and Hayes-compatible modem. $395. Pro Plus Software, 2830 E. Brown Rd., Mesa, AZ 85203. NCP (Nov 86)

DATABASES

Business Filevision is a masterpiece of Macintosh programming,
★★★★ the only true graphic database on any micro. Much more powerful than the original, accepts *MacPaint* graphics. $395. Marvelin, 3420 Ocean Park Blvd., Santa Monica, CA 90405. NCP (Feb 86)

C.A.T. is a dedicated relational database for managing contacts,
★★★★ activities and time. Difficult to learn, but easy to use. Its rigid structure takes some getting used to, but links between types of data make it easy to keep track of important people and events. $299.95. Chang Laboratories, 5300 Stevens Creek Blvd., San Jose, CA 95129. NCP (Nov 87)

dBase Mac is a relational DBMS that includes a structured pro-
★★★★ gramming language to develop standalone applications. Palette icons as alternatives to menu commands will help novice users. Requires 1M+. $495. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502-1319. NCP (Feb 88)

Double Helix II is a powerful database that supports a multiuser
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File is a flexible data manager. Creates files for a variety of data,
★★★★ including simple graphics. Files are created in simple row/column format, but reports and forms are easily customized. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP

FileMaker Plus retains features of *FileMaker* and reads *FileMaker*
★★★★★ data, also displays up to 8 files, uses "lookup" to retrieve data from other files. Enhanced calculation with many additional functions. Scripts automate a sequence of actions. Requires 512K+. $295. Nashoba Systems, 1157 Triton Dr., Foster City, CA 94404. NCP (Nov 86) ★'86 Eddy

4th Dimension is a versatile tool that creates standalone relational
★★★★½ databases. Design and layout environments allow easy linking of information. Robust. Pascal-like procedure language. $695. Acius, 20300 Stevens Creek Blvd., Cupertino, CA 95014. NCP (Nov 87) ★'87 Eddy

MacDewey! (version 2.5) is a cataloging program featuring the
★★★ Dewey Decimal Classification system. Uses predefined fill-in-the-blank fields to create catalog cards. Suffers from bugs in search routines and the inability to distinguish first names. Not for professionals; home libraries might benefit. $79.95. Mousetrap Software, 336 Coleman Dr., Monroeville, PA 15146. NCP (Nov 87)

MacRelax is a relational list manager that stores data in a column
★★ format. Files can be related by sharing a common field. Flexible design for reports. Screen display is sometimes strange. Easy to use but not obvious to learn. $59.95. 1M+ required. Arrays, 6711 Valjean Ave., Van Nuys, CA 91406. NCP (Jan 87)

Omnis 3 is a power database, featuring concurrent-multiple-file
★★★★ management. Can handle 24 files, 12 at a time, and is fully relational. Create custom environments, including user-defined menus, commands, and dialogs. $495. Blythe, 2929 Campus Dr., San Mateo, CA 94403. NCP (Mar 86)

OverVUE is a power-packed relational database that has extensive
★★★★½ sorting, summarizing, and report generation capacity. Has macros, and a charting function. Good manual. It can exchange files with a very wide variety of other programs (including IBM software). $295. ProVUE, 222 22nd St., Huntington Beach, CA 92648. NCP (Nov 85) ★'85 Eddy

Professional Bibliographic System is a specialized database for
★★★★ storing and retrieving bibliographies. Redesigned templates (20) simplify creation. Version 2.6 offers improved speed, flexible formatting. $295. Personal Bibliographic Software, Box 4250, Ann Arbor, MI 48106. CP (Feb 87)

Record Holder is a flexible, easy-to-use form-oriented data manag-
★★★★ er. Setup is particularly simple and the search features are powerful. $69.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074. NCP (Apr 86) ★'87 Eddy

Reflex for the Mac is a flexible relational database. Excellent report
★★★★½ generator gives full control over appearance, style of output. Requires 512K+, second drive, or hard disk. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 86) ★'86 Eddy

Reflex Plus is a relational database with "smart" entry, and report
★★★★ design, but no overall programming facility. Simple to set up, yet fast. Graphic capabilities are quite limited. Version 1.0 reviewed. $279. Borland/Analytica, 4585 Scotts Valley Dr., Scotts Valley, CA 95066-9987. NCP (Feb 88)

Writer's Workshop maintains orderly records for writers. It can
★★★½ track manuscripts, income, and publisher. Based on and includes *Runtime Helix*. $99.95. Futuresoft System Designs, PO Box 132, New York, NY 10012. NCP (Apr 87)

NUMBER CRUNCHING

DesignScope is a construction kit for digital and analog circuits. Up
★★★★ to 254 components can be utilized in a single circuit, and the equivalent of a dual-trace oscilloscope plots output in real-time. Good for testing circuitry without touching a breadboard. $249.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Nov 86)

Excel is THE power spreadsheet. Of the Mac, of the world. Has 256-
★★★★★ column by 16,384-row capability. Features include a powerful macro function (with a recorder to make creation simple) and elaborate charting facilities. 512K+ Mac and external drive required. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Prem) ★'85 Eddy

MacCalc is a fast, competent, full-featured spreadsheet with
★★★★ impressive built-in functions, font control, on-line help, ability to expand columns and rows, and read/write SYLK or WKS files. The worksheet is 125 columns by 999 rows. A very flexible, pure spreadsheet. $139. Bravo Technologies, c/o DPAS, PO Box T, Gilroy, CA 95021. NCP (Sep 86) ★'86 Eddy

MacSpin is a unique and powerful graphic data analysis program.
★★★★ Handles multivariate data in a highly visual manner. Nothing else like it for any micro. $199.95. D² Software, PO Box 9546, Austin, TX 78766-9546. CP (Jun 86) ★'87 Eddy

MacSQZ! compresses *Excel* files up to 88% of their actual size.
★★★★★ Good to free up disk space. Also contains password utility. *MultiFinder* hostile. Requires *Excel*. Version 1.01. $79.95. Turner Hall Publishing, 10201 Torre Ave., Cupertino, CA 95014. NCP (Aug 88)

Microtemp Financial Calculators is a set of worksheets for *Excel*
★★★½ and *Works* that calculates common personal and small business financial problems. Includes cash flow, real estate and rate of return calculators. Version 1.0.$79.95. Microtemp, P.O.Box 1208, Santa Rosa, CA 95402. NCP (Aug 88)

Mindsight is a professional level, decision-support, and business
★★★★ planning package. Can work with IFPS on mainframes, and is able to transmit models in both directions. Powerful and

MINIFINDERS



easy to use. Requires 512K+. $249. Execucom Systems, PO Box 9758, Austin, TX 78766. CP (Dec 86)

Multiplan, the first Mac product from someone other than Apple, is beginning to show its age. Still a very capable basic spreadsheet with simple sorting, 63 columns by 255 rows, many built-in functions, other standard spreadsheet features. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Mar 86)

Parameter Manager is a data manager, incorporating integrated scheduling, statistics, and graphics. It has solid spreadsheet, calendar, and database functions and reports can be customized using other software. *Parameter Manager* can also import data from *Excel* or *Lotus 1-2-3*. $495. Rebus, 2330-B Walsh Ave., Santa Clara, CA 95152. NCP (Jul 87)

StatView 512+ is a very intuitive statistical analysis program with tools needed to understand any set of data. Holds data in a spreadsheet-like form. Full-featured, fast, and accurate. Extremely wide range of analyses possible. Requires 512K+ and 800K of disk space to operate. $349.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (Dec 86)

101 Macros for Excel offers all the power of macros without having to learn how to write them. Some gems include a macro to transpose rows and columns, and a search and replace macro. Requires *Excel*. $69.95. Macropac International, 19855 Stevens Creek Blvd., Cupertino, CA 95014. NCP (Jul 88)

GRAPHICS & DESIGN

ArtWare: Borders enables you to customize your own clip art disk. The border collection is the best package in terms of quality of art. Other packages available. Requires a program that reads Encapsulated PostScript files. $129. Artware Systems, 3741 Benson Dr., Raleigh, NC 27609. NCP (Aug 88)

CalendarMaker creates monthly calendars in a variety of formats. Users can incorporate their art and daily notes. Note files can be imported from a variety of DA calendars and outliners. Shareware and prelicensed versions available. $49.95 CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Dec 86)

Canvas is a Draw and Paint program that uses QuickDraw as its output language. Full of features, including free rotation and one-and-two-point perspective. Also has graphics macro commands, unusual in a program this inexpensive. $295. Deneba, 7855 N.W. 12th St., Suite 202, Miami, FL 33126. NCP (Jan 88)

Chart can easily create area, bar, column, line, pie, scatter, and combination charts. A total of 42 styles are provided. Limited to 100 data items (64 in a series) on a 128K Mac, approximately twice that on a 512K Mac. $125. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP

Click & Clip offers seasonal graphics packages. Of the two quarterly editions released, the Spring '88 package is the better collection. Requires a program that reads Encapsulated PostScript (EPS) files. $39.95 per edition. Studio Advertising Art, P.O. Box 18432-52, Las Vegas, NV 89114. NCP (Aug 88)

ClickArt Special Effects is a *MacPaint* enhancement desk accessory. Allows the user to distort, stretch, rotate, and use perspective on *MacPaint* documents. A necessary addition for all serious users of *MacPaint*. $49.95. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Apr 86)

ColorPrint allows you to print *FullPaint*, *MacPaint*, *MacDraw*, and *MacDraft* documents in color using the ImageWriter II or ImageWriter I. *Paint* files set up as overlays are read into *ColorPrint*, and the program controls proper positioning registration. $29.95. I/O Design, PO Box 156, Exton, PA 19241. NCP (Mar 86)

Comic Strip Factory is an assembly program for creating comic strips. Includes a database of parts for various characters and backgrounds for panels. Good text editing in balloons. Can import and export in *MacPaint* format. $69.95. Foundation Publishing, 5100 Eden Ave., Edina, MN 55436. NCP (Dec 87)

Cricket Draw is an object-oriented drawing program that will produce stunning, high-quality output. Designed to print on PostScript-compatible devices, such as the LaserWriter. Making shadows and flowing fountain effects is just a point and click away. $295. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (May 87)

Cricket Graph easily generates 12 graph types. Multiple windows can be displayed. *Graph* prints in up to 8 colors with up to 16 patterns. Self-generating macro formatting. *Switcher*, HFS, LaserWriter, and plotter compatible. $195. Cricket Software, 30 Valley Stream Pkwy., Malvern, PA 19355. NCP (Jun 86) ★'86 Eddy

Crystal Paint creates an electronic kaleidoscope. It is *MacPaint*'s Brush Mirrors gone wild in a small, simple, yet wonderful application. Does not work in color on Mac II. *MultiFinder* friendly. Requires 512K+. $49.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Feb 88)

Curator catalogs your art and graphics so it's easy to see what's what and where it is. Supports PICT, TIFF, EPSF, PostScript, *MacPaint*, and more. Changes creator types. Requires 512K and an 800K drive. $139.95. Solutions International, 29 Main St., Montpelier, VT 05602. NCP

DeskPaint is a full-blown paint program as a desk accessory. Allows you to spruce up a graphic while in another application. Imports and exports *MacPaint* and TIFF images. Great for DTP, but not enough features to rival the leaders in paint programs. Zedcor, 4500 E. Speedway, Tucson, AZ 85712-5305. NCP (Mar 88)

"Draw it again, Sam..." (v. 1.03) is an object-oriented graphics program, like *MacDraw*, that adds such useful wrinkles as layered drawing, on-screen libraries, and color. Manual is weak. Requires 512K+ and an 800K disk drive. $150. Aba Software, PO Box 850, Frazer, PA 19355. NCP (Feb 88)

Easy3D is a three-dimensional, solid modeling masterpiece. Four variable light sources, powerful sculpting tools, and an exquisite user interface make this a must-have for graphics enthusiasts. Requires 512K+. $149. Enabling Technologies, 600 S. Dearborn, Chicago, IL 60605. NCP (May 86)

EPS Illustrations is a potpourri of illustrations with no real focus. As an art package, this one is not very useful as you cannot alter any of the drawings. Requires a program that reads Encapsulated PostScript (EPS) files. $129.95. T/Maker, 1973 Landings Drive, Mountain View, CA 94043. NCP (Aug 88)

EZ Draft is a high-level CAD application. Does things usually only found on minicomputer programs. Uses "pop-up" menus to supplement a full set of pull-down menus. Comes with an additional set of printer/plotter/monitor drivers. A real powerhouse. $1995. $500 for IEGS module to link to other CAD programs. Bridgeport Machines, 500 Lindley St., Bridgeport, CT 06606. CP (May 87)

FastForms! Construction Kit is both a fast and efficient business forms creator (a drawing program) and a specialized application (and DA) to fill out the data fields in your forms. $149 (US). Shana Enterprises, Advanced Technology Center #105, 9650-20 Ave. Edmonton, Alberta T6N 1G1, Canada. NCP (Nov 87)

Fluent Fonts is a two-disk collection of fonts. Forty-nine different items are included. All install easily in user systems. Most are well executed and some are extraordinarily nice. This is a real bargain for font lovers. $49.95. CasadyWare, PO Box 223779, Carmel, CA 93922. NCP

MINIFINDERS



Fontastic is the best font editor now available for the Mac. Features
★★★★½ a large editing window with a grid to make positioning easy. Select letters to edit by clicking on a matrix of the font. Allows scaling of existing fonts and previewing the various styles. $49.95. Altsys, PO Box 865410, Plano, TX 75086. NCP (Dec 85)

Fontographer is a complex, but excellent laser font creator. The
★★★★½ fonts created have 300 bits-per-inch resolution. The fonts are actually downloadable PostScript files. $395. Altsys, PO Box 865410, Plano, TX 75086. CP

FreeHand greatly simplifies the drawing of curves, the use of layers
★★★★½ and text handling when manipulating PostScript graphics. And it works in color on the Mac II. Requires 1M and 2 disk drives. $495. Aldus, 411 1st Avenue South, Seattle, WA 98104. NCP (Aug 88)

FullPaint is an expanded version of *MacPaint*. Features include full-
★★★★★ screen drawing, multiple documents opening simultaneously, brush editing, movable tool palettes, special text effects, and much more. It fills the gaps left by *MacPaint*. $99.95. Ashton-Tate, 20101 Hamilton Ave., Torrance, CA 90502-1319. NCP (Jun 86) ★'86 Eddy

GraphicWorks 1.1 is a powerful drawing and painting program that
★★★★ creates high-resolution bit-maps. Easels contain graphics, balloons hold text, and both reside on panels. Graphic primitives are now a separate tool. $149.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. NCP (Oct 87)

Graphidex indexes *MacPaint* and *MacDraw* format graphics without
★★½ removing them from their original documents. Indexed graphics are retrieved via the Graphidex DA. Can modify an indexed graphic without affecting the original. Best for bit-mapped (Paint format) images, but the design is questionable and the execution imperfect. Requires 512K+. $124.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP (May 87)

GridMaker is a tool for artists who use perspective. The program
★★★ automatically generates a series of three-dimensional plane sets that can be pasted into *MacDraw*. Sizes and viewing vantage points are easily modified. $49. FolkStone Design, PO Box 86982, North Vancouver BC V7L 4P6, Canada. NCP (Nov 86)

Illustrator is a professional-level graphics program. Unique and
★★★★½ powerful drawing technique. Program uses templates for precise and detailed art work. Requires 1M+. $495. Adobe Systems, 1870 Embarcadero Rd., Palo Alto, CA 94303. CP until registered (Jul 87)

Image Club is an overwhelming collection of EPS clip art avail-
★★★★★ able on disk and CD-ROM. Comes with a well-designed catalog of images. Requires a program that reads Encapsulated PostScript (EPS) files. $99. Image Club Graphics, 2915 19th St. NE, Calgary, Alberta, Canada T2E 7A2. NCP (Aug 88)

Image Studio puts a photo-retouching lab on the desktop. Editable
★★★★★ brushes let you modify digitized images in 65 gray levels. Requires 1M+ and two 800K disk drives. Mac II and *MultiFinder* friendly. Version 1.0 reviewed. $495. Letraset USA, 40 Eisenhower Dr., Paramus, NJ 07653. NCP (Jun 88)

Images with Impact! brings clip art out of the turn-of-the-century
★★★★★ woodcut style and into a modern graphic sensibility. "Graphics and Symbols 1" is the first in a series. Requires a program that reads Encapsulated PostScript (EPS) files. $99.95. 3G Graphics, 11410 NE 124th St., Kirkland, WA 98034. NCP (Aug 88)

Japanese Clip Art is a two-disk set of extraordinary Japanese clip
★★★★½ art. Consists of *MacPaint* documents and separate fonts. Volume I, Heaven, covers mythological subjects; Volume II, Earth, has secular subject matters. $79.95 each volume; $149.95 set. Qualitas Trading, 6907 Norfolk Rd., Berkeley, CA 94705. NCP (Apr 87)

LaserFonts are new fonts for the LaserWriter. Users download
★★★★ them to their machines. Very high quality and very simple to use. *Willamette* looks like Avant Garde. *MicroFonts* provides tiny, expanded, and condensed versions of the LaserWriter's own fonts. $34.95 to $44.95 each. Century Software, 2483 Hearst, #175, Berkeley, CA 94709. NCP

LaserPaint's clumsy interface makes it a slow program. There's
★ good laser output, if you persevere through the creation of a document. The support is scads better than the documentation, which is lousy. Version 1.1.4. $495. LaserWare, PO Box 668, San Rafael, CA 94915. CP (Jan 88)

Lasertalk is a PostScript programming tool that establishes interac-
★★★★★ tive contact with laser printers. Preview window and on-line help make it a powerful tool. Requires 1M+ and a PostScript Printer. $249. Emerald City Software, PO Box 2103, Menlo Park, CA 94026. CP until registered (May 88)

The Mac Art Dept. is a collection of over 150 graphic images
★★★★ ranging from foods to hands holding signs to borders. Best suited for letterheads, memos, other business use. $39.95. Simon & Schuster, Computer Software Div., 1 Gulf + Western Plaza, New York, NY 10023. NCP (Mar 86)

Mac-a-Mug is an Identikit-type program for creating faces from
★★★½ facial feature files. Uses scroll bars that are slow and jerky. Lots of creative fun. 1M+ Mac required. $59.95. Shaherazam, PO Box 26731, Milwaukee, WI 53226. CP (Jul 86)

MacCalligraphy is the best simulation of brush painting in any
★★★★½ graphics program. User-designed Seals and Touches enable you to design your own signature tool and the style of brush you use. Comes with a clip art disk. $175. Qualitas Trading, 6907 Norfolk Rd., Berkeley, CA 94705. NCP (Feb 88)

MacDraft is an object-oriented graphics program. It sports ad-
★★★★ vanced features such as variable scaling, single-degree rotation, complex arcs, and a FatBits-like magnification mode. Best used to complement *MacDraw*, not replace it. $269. Innovative Data Design, 2280 Bates Ave., Concord, CA 94520. NCP (Feb 86)

MacDraw is an object-oriented structured graphics program. Can
★★★★½ be used to design forms, create presentation materials, and do technical illustrations. Drawing sizes up to 8 feet by 10 feet are possible. Text can be easily generated and integrated in the graphics. $195. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Nov 85) ★'85 Eddy

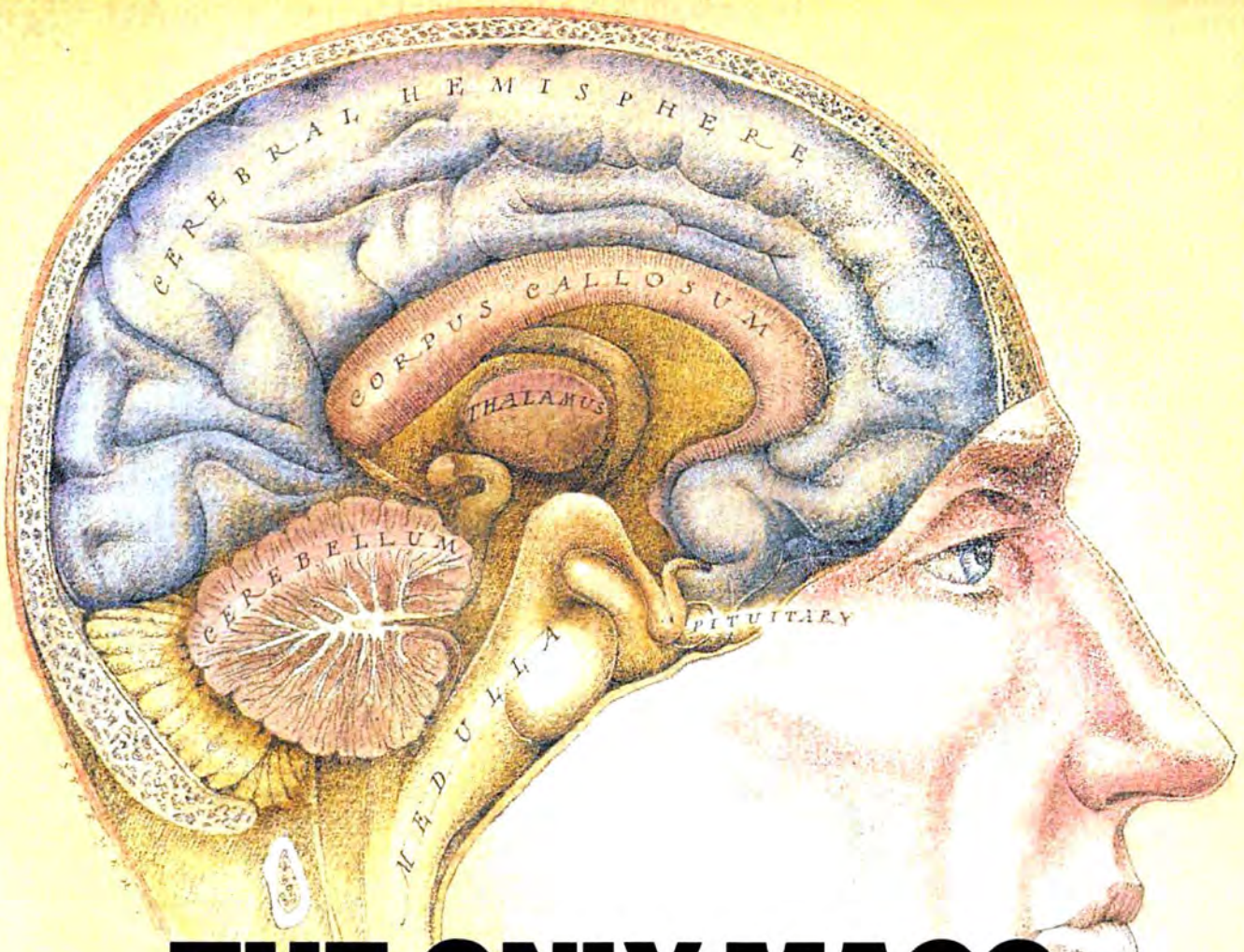
MacModel is an economical 3-D package with shading. Somewhat
★★★ sketchy Mac interface, shading speed slow (but acceptable), grainy image resolution. On-line help screens are a welcome addition. Frequent updates and low price make this a reasonably good buy. $40. A.P.P.L.E. CO-OP, 290 SW 43rd St., Renton, WA 98055. NCP (Aug 86)

MacPaint hasn't lost its shine after all these years. Still one of the
★★★★½ best freehand graphics tools. Version 2.0 supports multiple windows, design templates, and a magic eraser to correct corrections. Requires 512K and second disk drive. $125. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Jul 88) ★'85,'87 Eddy

Mac3D 2.0 is a feature-laden 3-D program with a *MacDraw*-like
★★★★ interface. PostScript-resolution shading with six variable light sources, user-definable tools, and many more features make this a powerhouse. $249. Challenger Software, 18350 Kedzie Ave., Homewood, IL 60430. NCP (Jan 87)

MapMaker v 3.0 is a digital cartographer that charts demographic
★★★★½ and marketing information on a geographic basis. Wide variety of amps available, some at an additional cost. Requires 512K. $349. Select Micro Systems, 40 Triangle Center, Yorktown Heights, NY 10598. NCP (Aug 88)

MGMS: Professional CAD for Macintosh offers more than 200
★★★★ functions. Very complete, capable program. Groups, Dimension, Libraries, etc., are standard. Sometimes confusing —



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MINIFINDERS



designed for experienced, professional CAD user, not the novice. Full plotter support. 512K+. $799. Micro CAD/CAM, 3230 Overland Ave., Los Angeles, CA 90034. NCP (Nov 87) ★'87 Eddy

MiniCad V. 3.0 is a pro-level CAD package. Vast array of features, many accessible only through Command/Shift/Option key combinations. Works in 2-D or 3-D with easy transition from one to the other. *MacDraw*-like interface makes it easy to learn and use. Requires 512K+. Diehl Graphsoft, 8370 Court Ave., Suite 202, Ellicott City, MD 21043. CP (Oct 87)

Phoenix 3D is an economical 3-D drawing package, with features that belong in a more expensive program. Multiple light sources, fine object placement and orientation control, and a good selection of shapes. $49.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Oct 86)

PictureBase is a powerful graphic librarian. You can store paint and PICT formatted items and attach keywords for later search and retrieval. $69.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Sep 87) ★'86 Eddy

PixelPaint is a color paint program with customizable palettes and lots of special effects. Slow OPEN and SAVE. Requires Mac II and 8-bit video card. $495. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (May 88)

Post Art I is a collection of signed originals on disk. Overall, a pretty useless collection in terms of clip art. Meant for hanging prints on a wall. Requires a program that reads Encapsulated PostScript files. $69.95. Olduvai, 7520 Red Rd., So. Miami, FL 33143. NCP (Aug 88)

The Print Shop makes it easy to create greeting cards, signs, banners, and letterheads. Uses its own special graphics and can import *Paint* files. Hard-disk users get version 1.02 or higher. $79.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Sep 87)

Slide Show Magician 1.3 is useful for creating full screen audio-visual presentations on the Mac. Frame branching, improved editing capabilities, external cassette recorder synchronization, and digitized sound capabilities make this much more powerful than the original. $59.95. Magnum, 21115 Devonshire St., Chatsworth, CA 91311. CP (Mar 86)

Space Edit is a 3-D CAD program. Display shows top, front, side, and axonometric views of an object, all at once or one at a time. Has standard CAD features plus zoom, exploded view, animated flyover. Suppression of hidden lines is very slow. Requires 1M+. $625. Abvent, 9903 Santa Monica Blvd., Beverly Hills, CA 90212. CP (Jul 87)

Storyboarder produces working animated storyboards for use in film and video production. Imports graphics from *MacPaint;* allows screen masking to simulate television, 35mm or 70mm screen widths; allows limited animation and special effects. $495. American Intelliware, PO Box 6980, Torrance, CA 90504. CP (Nov 86)

SunShine Graphics Library is a collection of 46 400K disks (to date) with a wide variety of high-quality digitized images stored as *MacPaint* files. $20/disk: discount scale for multiple purchases. SunShine, Box 4351, Austin, TX 78765. NCP (Feb 87)

SuperPaint is a powerful, easy-to-use graphics program with all the best features of *MacPaint* and *MacDraw* — and then some. LaserBits provides 300 dpi magnification and there are 40 editable brush shapes. Requires 512K+. $149.95. Silicon Beach, 9580 Black Mountain Rd., PO Box 261430, San Diego, CA 92126. NCP (Feb 87) ★'87 Eddy

TrueForm takes a scanned image of a paper form and turns it into an electronic equivalent, complete with fields for entering data. It can automatically sum numeric fields. Requires external 800K drive. $495; run-time version, $295. Spectrum Digital Systems, 2702 International Lane, Madison, WI 53704-3122. NCP (May 88)

VersaCAD is a powerful CAD program that doesn't show any of its MS-DOS roots. Excellent element manipulation, full plotter support. Library user interface is crude. Requires 1M+. $1995. VersaCad, 2124 Main Street, Huntington Beach, CA 92648. NCP (Jul 88)

VideoWorks II is an easy-to-use animation tool — the best available on the Mac. Has an Overview mode that acts as a slide show carousel for presentations. Works in color on the Mac II. $195. Requires 1M+ and an 800K drive. MacroMind, 1028 W. Wolfram, Chicago, IL 60657. NCP (Mar 88) ★'85, '87 Eddy

VideoWorks II Clip Animation, *Clip Charts, Black and White Movies,* and *Clip Sounds* are four separate aids to help you construct movies and business presentations. Requires *VideoWorks II.* $49.95 to $59.95. MacroMind, 1028 W. Wolfram, Chicago, IL 60657. NCP (Aug 88)

WetPaint consists of two 3-disk volumes of very high quality clip art. Also includes the *Art Roundup* DA, a good art browser/editor. Volume 1 or 2, $39 each; both volumes, $59. Available in *PictureBase* format for $15 extra per volume. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Sep 87)

World-Class Fonts! comes in two volumes of three disks each. Includes all the *Mac the Knife* fonts and a lot more, including two useful utilities. This is now the best collection of ImageWriter fonts available. Each volume: $39; both volumes: $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Dec 86)

DESKTOP PUBLISHING

Interleaf Publisher is a speedy multiuser layout system for producing large, complicated documents. Has strong global formatting ability but can't use downloadable fonts. Requires Mac II with 5M of RAM and 40M hard disk. $2495. Interleaf, 10 Canal Park, Cambridge, MA 02141. NCP (May 88)

JustText is a professional level word processor and page makeup program that generates PostScript output. Comes with a set of LaserWriter utilities that allow total manipulation of art and text. Requires LaserWriter or other PostScript compatible output device. $195. Knowledge Engineering, GPO Box 2139, New York, NY 10116. NCP (Dec 85)

MacTEX (v. 2.0) is the TeX environment of choice for hardcore TeX users on the Macintosh. Very intimidating for others. Painfully slow and visually unattractive. Requires 1M+. $750. FTL Systems, 234 Eglington Ave. East, Toronto, Ontario M4P 1K5, Canada. NCP (Apr 88)

PageMaker v. 3.0 retains its paste-up approach to page layout. New features include auto text flow, style sheets, and spot color support. The standard keeps getting better. Requires 1M+ hard disk. $595. Aldus, 411 First Ave. South, Seattle, WA 98104. NCP (Aug 88) (★) '85, '87 Eddy.

Portfolio: Designs for Newsletters provides over 20 templates for 2-page newsletters with pre-set columns, headlines, graphics, and captions. Documentation provides excellent tutorial in page design. Requires 512K+; *PageMaker.* $79.95. Aldus, 411 First Ave. S., Suite 200, Seattle, WA 98104. NCP (May 87)

QuarkXPress is a high-end desktop publishing application. Layout is done in block format; powerful lining tool ties blocks together. $695. Quark, 200 S. Jackson, Denver, CO 80209. NCP (Sep 87)

Ragtime is an "Integrated Page Processor" with text, graphics, and built-in spreadsheet. Flow text automatically from one frame to another. Spreadsheet has a full set of functions. Excellent, easy-to-use program. Requires 512K+. $395. Orange Micro, 1400 N. Lakeview, Anaheim, CA 92807. NCP (Aug 88)

MINIFINDERS



Ready, Set, Go! 4 has an elegant interface and excellent manual. ♦♦♦♦½ Powerful text wraparounds, fast word processor with hyphenation and spelling check and custom stylesheets. Requires 1M+. $495. Letraset, 40 Eisenhower Dr., Paramus, NJ 07652. NCP (Feb 88) ★'86 Eddy

Scoop could someday be the world's best desktop publishing program, but version 1.0 isn't it. There are various ways to cause the program to bomb which need to be fixed. The manual is poorly organized and lacks tutorials. $495. Target Software, 14206 SW 136th St., Miami, FL 33186. NCP (Feb 88) ♦♦½

TeXtures (v. 1.0) is an implementation of TeX, the big daddy of typesetting programs. Good for people trained on mainframes in the early days. Otherwise very sticky with a high learning curve. Requires 512K+. $495. Kellerman & Smith, 534 S.W. 3rd Ave., Portland, OR 97204.. NCP (Apr 88) ♦♦♦

COMMUNICATIONS

AppleShare is the long-awaited file sharer from Apple. Software-based, *AppleShare* requires you to dedicate a Mac and a hard disk to run it. Allows users on the network to protect things from other users on the folder level. Interface to network is provided at a revised *Finder*. $799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (May 87) ♦♦♦♦

ComServe allows you to share a Hayes-compatible modem over an AppleTalk network. You can call out, but you can't call in. Works with most telecommunications packages. $195 per server. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. CP (Feb 88) ♦♦♦♦

Desktop Express is a simple-to-use, semi-automated program for using MCI Mail and Dow Jones News/Retrieval. Performance is traded off for ease of use. Requires 512K+. $149. Dow Jones, PO Box 300, Princeton, NJ 08543. NCP (Jan 88) ♦♦♦½

HomePak is a package consisting of *HomeTerm*, an excellent, simple telecommunications program with strong macro features; *HomeFind*, an electronic filer as bad as *HomeTerm* is good; and Apple's *Edit*, a simple, non-HFS-compatible text-file editor. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Sep 86) ♦♦

InBox is an easy-to-use mail system. It's called up from a desk accessory. Has a very slick interface. Dedicated Mac not required. $350 for starter set which includes one Administrator disk and three Connection disks. Additional Connections cost $125 each. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (May 87) ★'86 Eddy ♦♦♦♦½

InTalk comes with its own communications command language able to do unattended sessions. Supports Xmodem and MacBinary. Has a macro key function. Many sample setup documents and command language files provided. $195. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Prem) ♦♦♦♦½

LapLink Mac quickly transfers data to and from the MS-DOS and Mac environments. Kit contains a cable and software. Control of transfer is on the IBM side. Version: 1.2. Requires 512K. $139.95. Traveling Software, 19310 North Creek Pkwy., Bothell, WA 98011. NCP (Aug 88) ♦♦♦♦

MacTerminal provides basic telecommunications and terminal emulation. Doesn't have macros nor any sort of auto re-dial/auto log-on capability. Best for those needing faithful VT100 or IBM 3278 emulation — it is superb at those. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Prem) ♦♦½

Microphone is a high-powered terminal program that's easy enough for novices. Very powerful command language allows full automation of communications, if desired. $149. Software Ventures, 2907 Claremont Ave., Berkeley, CA 94705. NCP (Jul 86) ★'86 Eddy ♦♦♦♦½

Microsoft Mail is an electronic mail system that runs under AppleTalk. Supports file transfers across the mail system. Full online help facility. Also includes "While you were out" messages. Desk accessory based. Prices determined by number of users licensed. One to four users, $299.95; 5 to 10 users, $499.95; 11 to 20 users, $749.95; 21 or more users, $949.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May 87) ★'87 Eddy ♦♦♦♦½

Red Ryder is a full-featured telecommunications program that supports MacBinary, Xmodem, and Kermit. Has big screen support, auto procedure creator, and up to 30 keyboard macros. This is the cream of the crop (in late 87). $80. Freesoft, 150 Hickory Dr., Beaver Falls, PA 15010. NCP (Dec 87) ★'87 Eddy ♦♦♦♦♦

Smartcom II balances power and ease of use. Capable of unattended operation and has a very powerful command language. ♦♦♦♦½

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MINIFINDERS



Supports MacBinary, Xmodem, and Hayes Verification protocols. The large screen buffer can easily be archived. $149. Hayes, 5923 Peachtree Industrial Blvd., Norcross, GA 30092. NCP (Jul 86) ★'85 Eddy

Telescape is the power telecommunicator's terminal program. Can ★★★ be configured to emulate any terminal. The documentation does not adequately explain the many features. $125. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 86)

TOPS is a file server designed to network computers with different ★★★★½ operating systems. Supports Macs, MS-DOS compatibles, and UNIX. Access to files and subdirectories is transparent to the user; they appear as Mac folders. Only handles ASCII or Text files. $149 for Mac version. $389 for PC's (comes with add-on card). TOPS, 2560 Ninth St., Berkeley, CA 94710. Serial number protected. (May 87) ★'87 Eddy

VersaTerm features include DEC VT100 and VT52, Tektronix 4014 ★★★★½ graphics terminal and Data General DG200 emulation. Supports Xmodem and *MacTerminal* Xmodem protocols and MacBinary. *VersaTerm* is easy to use and well-documented. $99. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. CP (Prem)

VersaTerm-Pro is a very powerful terminal program with several ★★★★½ special features. Does one of the best VT100 emulations available and specializes in high-quality Tektronix 4014 and 4105 emulation. A pro's tool. Requires 512K+. $295. Peripherals, Computers & Supplies, 2457 Perkiomen Ave., Mt. Penn, PA 19606. NCP (Apr 87)

WORD PROCESSORS

Document Compare allows users to compare any two *MacWrite* ★★★ 4.5, ASCII, or MDS documents. Differences in spelling, punctuation, formatting, and wording are detected. Documents can be printed out with differences highlighted. $99. Legalware, 33 Young St., Toronto, Ontario M5E 1S9, Canada. NCP (May 86)

Document Modeler can automate much of a professional office's ★★★★½ correspondence. Comes in two parts: *Template Maker* and *Document Maker.* Initial setup requires time and is complex. $299.95. Legalware, 33 Young St., Toronto, Ontario M5E 1S9, Canada. NCP (Mar 87)

Doug Clapp's Word Tools is a useful punctuation and style editing ★★★★ program. It won't turn you into a Proust, but it will help you make your writing cleaner and clearer. Word counts among different formats show discrepancies, but not to worry. Requires 512K+. $79.95 Aegis Development, 2125 Pico Blvd., Santa Monica, CA 90405. NCP (Sep 87)

Expressionist is a powerful DA that allows you to create complex ★★★★★ mathematical equations from within an application. Equation manipulation has never been easier. $79.95. Allan Bonadio Associates, 1579 Dolores St., San Francisco, CA 94110. NCP (Jul 87)

Graham Speller is a desk accessory-based spelling checker. In- ★★★ cludes macro feature. Good guesser in interactive mode. Clumsy interface. Version 1.1. $44.95. Graham Software, 8609 Ingalls Circle, Arvada, CO 80003. NCP (Aug 88)

Kadmos Greek Font is a full character set of ancient Greek that ★★★½ prints on any PostScript printer. Requires learning new typing skills, but excellent quality makes it worth the effort. $85. Allotype Typographics, 1600 Packard Rd., Ann Arbor, MI 48104. NCP (Oct 87)

Laser Author is a high-powered, technically oriented word proces- ★★★½ sor. Good math setting capability. Has style sheets, word count, and page layout capability. $199.95. Firebird Licensees, PO Box 49, Ramsey, NJ 07446. NCP (Mar 87)

Liberty Spell Checker is a fast, effective, interactive checker. The ★★★½ dictionary is smaller than average, but well chosen. Unfortunately, it has a few misspelled words. $59.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Oct 86)

Lookup is an on-call, quick single-word spelling checker. Designed ★★★★★ for the way writers really work. Uses the 93,000+ word *Spellswell* dictionary. $49.95. Working Software, 321 Alvarado, Suite H, Monterey, CA 93940. (Dec 87) NCP

MacGAS is a DA spelling checker with both a small and extended ★★★ dictionary. Its best point is the excellent thesaurus, provides antonyms & glossary. A slow checker. $99. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. CP (Oct 86)

MacProof is a grammar, style, and spelling checker that's like ★★★★½ having your own personal copy editor. Grammar rules are fixed, and you may not agree with the choices. The program only suggests corrections, it doesn't make them for you. And the checking process can be slow if your document is long. $195 for standalone version; $2500 for networked version. Automated Language Processing Systems, 190 West 800 North, Provo, UT 84604. NCP (Apr 87)

MacWrite is starting to show its age. While still a good, basic ★★★½ program, it's out-performed by its competition. Probably enough for the occasional user. Version 5.0 includes Command key equivalents and spell checker. Requires 512KE+. $125. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Jun 88) ★'85 Eddy

MergeWrite is a mail-merge program for *MacWrite* (also works with ★★★½ ASCII files). Program combines names and addresses from a data file into predefined fields in a form letter. Also allows simple conditional IF-THEN-ELSE equations. $49.95. Software Discoveries, 137 Krawski Dr., South Windsor, CT 06074. NCP (Dec 87)

MindWrite integrates outlining and word processing better than ★★★★ anyone. Version 1.1 fixes many problems of the earlier version. Sophisticated search and select options. Unimpressive speed. $295. Access Technology, 555C Heritage Harbor, Monterey, CA 93940. NCP (Feb 88)

QUED/M (v. 2.01) is an excellent text editor that saves documents ★★★★½ in a form readable by most computers and printers. Doesn't support graphics or multiple fonts. Programming language allows creation of database. $129. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 88)

QuickWord is a word processing accessory that adds sophisticated ★★★½ glossaries to *MacWrite*. Simple to install and use, yet powerful and efficient. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP

Scriptor is designed for producing standard format scripts. Starts ★★★★ with a *Word* document. As you change your *Word* document, *Scriptor* will reformat, renumber, and reprint the script. Supports LaserWriter and daisywheel printers. $295. Screenplay Systems, 348 E. Olive Ave., Suite F, Burbank, CA 91502. NCP (May 87)

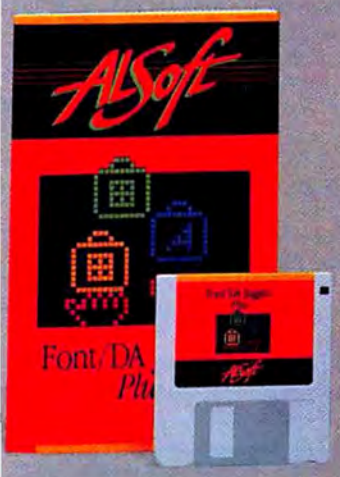
Spelling Champion is a fast and accurate batch-type spelling ★★★★ checker. Back-up feature allows you to undo corrections in a paragraph. Works only with *MacWrite* 4.5. $39.95. Champion Software, 6617 Gettysburg Dr., Madison, WI 53705. NCP (Oct 86)

Spelling Coach Professional is a desk accessory and stand-alone ★★★★½ spelling checker as well as thesaurus. Includes dictionary definitions. Off-the-wall phonetic guesses. Version 3.0. $195. Deneba Software, 7855 N.W. 12th Street, Suite 202, Miami, FL 33126. NCP (Aug 88)

Spellswell is a stand-alone batch spelling checker. Also checks for ★★★★½ punctuation and other errors. Good dictionary, thorough checking, simple interface. Weak guessing. Version 2.0. $74.95. Working Software, 321 Alvarado St., Monterey, CA 93940. NCP (Aug 88)

Thunder! is a desk accessory spelling checker. Includes macro ★★★★½ features. Fairly fast, good guessing of misspelled words.

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MINIFINDERS

Small dictionary. *MultiFinder* hostile. Version 1.1. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Aug 88)

Word 3.01 fixes many of the bugs of the justly maligned 3.0. Still, ★★★★½ it's the most feature-laden word processor around. Also has Microsoft's somewhat unusual view of what the Mac interface is. Esoteric command key combinations. Requires 512K+. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073. NCP (Mar 88)

WorksPlus Spell is a speedy spelling and hyphenation checker for ★★★★½ *Microsoft Works*. It includes a glossary for abbreviations and time/date stamping. The biggest drawback is its limitation to one program. $59.95. Lundeen & Associates, PO Box 30038, Oakland, CA 94604. NCP (Oct 87) ★'87 Eddy

Write is a "beginner's" version of *Word* 3.0. More features than ★★★ some word processors in its class, but not all of the features work well. Poor value, and expensive upgrade path to *Word*. $175. Requires 512K+. Microsoft, 16011 NE 36th Way, Box 97017, Redmond, WA 98073-9717. NCP (May 88)

WriteNow for the Macintosh has many of the features of *MacWrite* ★★★★½ and then some, including the ability to work in columns. Has built-in spelling checker with 50,000-word dictionary. $175. T/Maker, 1973 Landings Dr., Mountain View, CA 94043. NCP (Mar 87)

SYSTEM SOFTWARE

HyperCard is a totally unique program for the Mac. It uses an index ★★★★ card metaphor and it contains a programming language, HyperTalk. Requires 1M+. Free with new Macs, otherwise $49.95. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Dec 87) ★'87 Eddy

System Tools 5.0 is the Apple System upgrade for Mac Plus, SE, ★★★★ and II owners. It contains *MultiFinder* (a multitasking environment), a LaserWriter spooler, and a Control Panel resource to add color on the Mac II desktop. Takes 1M+. $49. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Mar 88)

HYPERCARD

Business Class is a *HyperCard* stack that contains world travel infor- ★★★½ mation and itinerary planning. Uses maps to locate countries of interest, but it lacks United States domestic travel information. Requires 1M+ and *HyperCard*. $49.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. NCP (Mar 88)

City to City imparts travel information on 31 U.S. cities including ★★★★ details on hotels, restaurants, and nightlife. Helps plan an itinerary. Requires *HyperCard*, 2 disk drives, and a printer. $49.95. Activision, 3885 Bohannon Dr., Menlo Park, CA 94025. NCP

Focal Point is a *HyperCard* stack that ties together a calendar, ★★★★½ phone log, client accounts, and more in one easy-to-use organizational tool. Requires 1M+ and *HyperCard*. $99.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. NCP (Mar 88)

HyperBook Maker adds many of the printing utilities that *Hyper-* ★★★ *Card* lacks. Best used to figure out signature breaks to print

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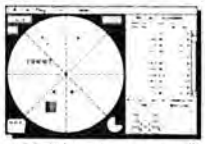


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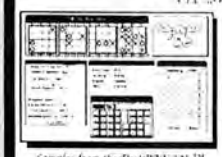
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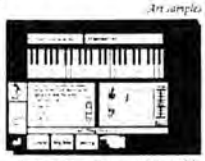
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SoundPAK 150

Samples from the DeskPAK 200 ™

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FontPAK 200



Layout from the UtilityPAK 150 ™

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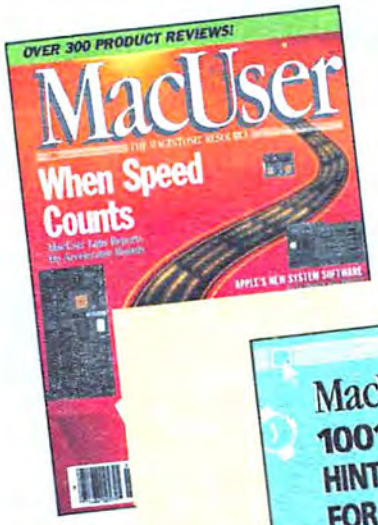
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MINIFINDERS



pamphlets. Version 1.1a reviewed. Mac II and *MultiFinder* friendly. $59.95. Ideaform, 612 West Kirkwood, Fairfield, IA 52556. NCP (Jun 88)

HyperDA lets you browse through *HyperCard* stacks through a desk ★★★★ accessory. A true equalizer for 512K Mac owners who cannot normally access stackware. Doesn't support global variables. Requires 512K+. $69. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (May 88)

HyperTutor is a stack that teaches HyperTalk, *Hypercard*'s pro- ★★★★½ gramming language. Uses an interactive Test Mac on each card to write scripts. A variety of windows makes it good for both beginners and advanced programmers. $49.95. Teligraphics, 936 Sir Francis Drake Blvd., Kentfield, CA 94904. NCP (Apr 88)

Reports endows *HyperCard* stacks with the power to sort and im- ★★★½ part information like a database. Customizing reports is difficult. Requires *HyperCard*. $99.95. Activision, Inc., 3885 Bohannon Dr., Menlo Park, CA 94025. NCP (Aug 88)

ORGANIZATIONAL TOOLS

Acta is an outline processor in desk accessory format. It has practi- ★★★★½ cally all the power of a standalone program, and then some. Can save files as *Acta* outlines, *MacWrite* or text files. $59.95. Symmetry, 761 E. University Dr., Mesa, AZ 85203. NCP (Jul 86)

AEC Information Manager helps middle-level paper-pushers keep ★★½ track of projects from start to finish. Has date calculations, scheduling graphs, and alarms. Overpriced. Version 1.21 reviewed. Requires 1M+. $695. AEC Management Systems, 20524 Amethyst Lane, Germantown, MD 20874. NCP (Jul 88)

Calliope is a new type of outlining program. Chunks of information ★★★ are manipulated as small "light bulbs" containing text. Related elements can be graphically connected, and their text information viewed in hierarchical order. Text files can be created for *MacWrite* editing. $99. Innovision, PO Box 1317, Los Altos, CA 94023. NCP (Sep 86)

Comment (previously known as *Memorandum*) is the electronic ★★★½ equivalent of Post-it Notes. Notes can be attached to many different types of documents. Doesn't work well with *SuperPaint* or *Microsoft Works*. An alarm clock feature alerts users of Timed Notes. $99.95. Deneba Systems, 14206 SW 136th St., Miami, FL 33186. NCP (Nov 87)

Design is a powerful organizational tool. It goes beyond mere flow- ★★★★ charting. Complex, detailed program aimed at software pros. $250. Meta Software, 150 CambridgePark Dr., Cambridge, MA 02140. NCP (Apr 87)

FlowMaster charts your ad dollars in print, TV, billboard, and other ★★★★★ mediums. Analyzes cost/benefit of a campaign in terms that even jaded Mad. Ave. execs will find innovative. Includes bar-chart and tabular output. Requires 512K+. $495. Select Micro Systems, 40 Triangle Ctr., Yorktown Heights, NY 10598. NCP (Jan 88)

GeoQuery puts your database on the map by accessing Zip code ★★★★ information. Comes with maps of the U.S. Other atlases available. Version 1.0 reviewed. Requires 1M+ and second disk drive. $349. Odesta, 4084 Commercial Avenue, Northbrook, IL 60062. NCP (Jul 88)

Pearl Lisp

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Guide allows you to "cross reference" from within a document ★★★★½ using hypertext. You can set up words or sections of the document so that double-clicking brings up explanatory material, graphics, and other useful items. The word processing and formatting functions, however, are limited. $135. OWL International, 14218 NE 21st St., Bellevue, WA 98007. NCP (Apr 87)

Instant Expert is an excellent way to learn the mechanics of creating ★★★½ an expert system. The inference engine (that ultimately finds the answer) is visible. Lacks a true Mac interface. Version 1.0. $49.95. Human Intellect Systems, 1670 S. Amphlett Blvd., Suite 326, San Mateo, CA 94402. NCP (Jan 88)

MacProject allows a user to plan and track a project from beginning ★★★ to end. Uses CPM to produce schedules with start and finish dates for each task. Can report on resource interdependencies and generate all needed printed reports. $195. Claris, 440 Clyde Ave., Mountain View, CA 94043. NCP (Mar 86)

MacSMARTS can create small, standalone expert systems. Fea- ★★★ tures hypertext connections to Paint, PICT, SYLK, and text files. Still a little buggy. Requires 512K+. Version 1.03. $149.95. Cognition Technology, 55 Wheeler St., Cambridge, MA 02138. NCP (Jan 88)

Micro Planner Plus is a great project management system. Out- ★★★★½ standing analysis capability. Memory based, making it much faster than the original. Includes a font menu. Even saves reports out in *MacDraw* format for further work. Uses standard print drivers. HFS compatible. $495. Micro Planning International, 235 Montgomery St., San Francisco, CA 94104. NCP (Dec 86)

MORE is an incredibly powerful outline processor with gobs of great ★★★★★ features: instant charts, math capabilities, multiple windows, font and style control, templates, and more. Prints outlines in any of several standard formats, even in color. Requires 512K+. $395. Symantec, 117 Easy St., Mountain View, CA 94043. NCP (Jan 87) ★'86 Eddy

PowerPoint is a comprehensive presentation-creation tool. Han- ★★★★ dles 35mm slide and overhead transparency formats. Good graphics and text editing capabilities. Requires 512K+. $395. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (Aug 87) ★'87 Eddy

STELLA for Business is a simulation tool used to model complex ★★★★½ business systems. Requires that you master a discipline called "system dynamics." Requires 512K+. Mac II version available. $350. High Performance Systems, 13 Dartmouth College Hwy., Lyme, NH 03768. NCP (Jun 88)

SuperExpert is an expert system shell that induces rules from ★★½ examples. Rules become unwieldy when many criteria and examples are used. Overpriced. Version 1.4 reviewed. Requires 512KE. $199.95. Softsync, 162 Madision Avenue, New York, NY 10016. NCP (Jul 88)

DESK MANAGERS

Executive Office is a jack of all trades office application. Good ★★★½ database, word processing, graphics, and minispreadsheet. Available on 400 or 800K disks; get the 800 if you can. $249.99. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Mar 87)

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Front Desk lets small businesses and offices easily keep track of ★★★ personnel schedules, activities, and payments. The program can keep track of up to 15 employees, functioning as a day-, week-, and month-at-a-glance calendar. $149.95. Layered, 529 Main St., Boston, MA 02129. NCP (Dec 85)

MockPackage+ is a set of extremely powerful DAs. Includes a ★★★★½ text editor, text printer (supports LaserWriter), charter, terminal, and EZmenus. HFS compatible. $35. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Mar 87)

My Office lets you handle your files and papers in much the same ★★★★ way you did before you got a computer. Excellent use of graphic symbols. $129.95. DataPak, 14011 Ventura Blvd., Sherman Oaks, CA 91423. CP (Prem)

Quickset is a set of desk management and organizational tools that ★★★ can be used as desk accessories or applications. Functions include note filer, card filer, calendar, phone dialer, financial, and statistical calculators, and a file encryptor. $49.95. EnterSet, 2380 Ellsworth, Berkeley, CA 94720. NCP (Dec 85)

SideKick 2.0 beefs up original *SideKick* DAs and adds two major ★★★★ new ones — *MacPlan*, (formerly *Click-On Worksheet*) and *Outlook*, a full-featured outliner. Also comes with seven applications to support the desk accessories. $99.95. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Jun 87)

Smart Alarms is the best reminder system for the Mac. Easy to use, ★★★★½ versatile and, well, smart. This self-running DA automatically reminds you of anything you enter into its Reminder file, giving you a wide range of useful advance warning options. $49.95. Imagine Software, 19 Bolinas Rd., Fairfax, CA 94930. NCP (Oct 86)

Top Desk is a set of 7 self-installing (and self-removing) DAs. *Menu* ★★★★½ *Key* adds Command key sequences to programs; *View* allows looking at and moving data between up to 8 *MacWrite* documents; also included are *BackPrint, Touch 'n' Go, Blank, Encrypt,* and *Launch*. $59.95. Cortland Computer, PO Box 9916, Berkeley, CA 94709. NCP (May 86) ★'86 Eddy

UTILITIES

Accessory Pak 1 is a set of useful applications and utilities. *Paint* ★★★★ *Cutter* alone is worth the price. That program allows users to browse and manipulate full page *MacPaint* documents. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Nov 85)

AutoSave DA is insurance against system crashes. It saves your ★★★ work automatically at intervals from 1 to 99 minutes. Compatible with many applications, but not recommended for use with databases. $49.95. Magic Software, 1706 Galvin Rd. S., Bellevue, NE 68005. NCP (Jan 88)

Capture saves any portion of a Macintosh screen to the Clipboard or ★★★★★ as a PICT file. Works in color on the Mac II. Requires 512K+. *MultiFinder* friendly. $59.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 88)

Colorizer adds pigments to the desktop and black and white appli- ★★★ cations. Also colors PICT graphics. System resources include saving and printing color screens. A useful novelty

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that'll run its course as developers add color to apps. Requires Mac II. $49.95. Palomar Software, PO Box 2635, Vista, CA 92083. NCP (Jan 88)

Copy II Mac does efficient sector and bit copies and in its latest ★★★★★ version can back up virtually all Mac software. Features graphic displays of copy progress. Comes with *MacTools*, a multi-use utility that can recover many damaged files. $39.95. Central Point Software, 9700 SW Capitol Highway, Portland, OR 97219. NCP (Apr 86) ★'85 Eddy

DiskExpress unfragments disk volumes by reorganizing data into ★★★★ continuous sectors and arranging files to slow down further fragmentation. Works with *MacServe*, floppy drives, and most hard drives. Requires 512K+. $39.95. ALSoft, Box 927, Spring, TX 77383. NCP (Feb 87)

DiskFit is a utility for backing up and restoring hard disk files. Cre- ★★★★½ ates a "SmartSet" of floppy disks so incremental back-ups only update files modified since the last back-up procedure. Backs up to floppies or another hard disk. Requires 512K+. $74.95. SuperMac Software, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Jun 87)

DiskQuick is an easy-to-use cataloging program. Criteria selection ★★★★ option for generating subcatalogs. Requires 512K+. $49.95. Ideaforms, PO Box 1540, Fairfield, IA 52556. NCP (Apr 87)

Disk Ranger is a speedy cataloging program that doubles as an ★★★★ efficient labelmaker. Comes with pinfeed labels. Works with regular and hard disks. Can catalog HFS systems. $34.95. Graham Software, 8609 Ingalls Circle, Arvada, CO 80003. NCP (Mar 86)

DiskTools Plus is a set of 8 useful DAs and applications. Earlier ★★★★★ version was sold as *Battery Pak*. The DA *Disk Tools II* is a *Finder* replacement. Also included are an RPN calculator, *Phone Pad*, and *Calendar Manager*. Requires 512K+. $49.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Mar 88)

DiskTop is a desk accessory *Finder* replacement of extraordinary ★★★★½ power and ease of use. Comes with the useful *LaserStatus* DA and *Widgets* application. The extras alone are worth the price. Requires 512K+. Upgrade from version 1.0, $7; $10 with new manual. $49.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Aug 87)

Dubl-Click Calculator Construction Set lets users design person- ★★★★½ alized calculators with a variety of standard and special functions. Finished calculators can be saved as installable desk accessories or as clickable applications. $59. Dubl-Click Software, 18201 Gresham St., Northridge, CA 91325. NCP (Apr 86)

Eureka: The Solver is a free-form numerical equation solver. Stand- ★★★ ard trigonometric and logarithmic functions are available as is treatment of imaginary and complex numbers. $195. Borland International, 4585 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Mar 88)

Fastback for the Macintosh is hard disk back-up software that is ★★★ very quick if not very efficient. Doesn't automatically exclude applications. Creates a separate catalog disk. $99.95. Fifth Generation Systems, 1322 Bell Ave., Tustin, CA 92680. NCP (Apr 88)

FedIt Plus is the file and disk editor for everyone, from newest Mac ★★★★★ owner to oldest. It can do more for your disks and files than any other application. Can recover deleted MFS files. If you own a Mac, get it. HFS-compatible. $49.95. MacMaster Systems, 108 E. Fremont Ave., #37, Sunnyvale, CA 94087. NCP (Sep 86) ★'86 Eddy

Findswell is an indispensible utility that installs a new button in the ★★★★★ Open Dialog box of virtually every Macintosh application. Press the button, type a search string, press Find and *Findswell* searches for any files that match. Click Open or double-click to open the correct file. Requires 512K+. $49.95. Working Software, 321 Alvarado, Monterey, CA 93940. NCP (Nov 87) ★'87 Eddy

1stAid Kit HFS recovers lost or damaged files from floppy or hard ★★★★½ disks. An excellent manual-turned-textbook actually teaches the Hierarchical File System. Requires 1M+. Version 2.2 reviewed. $99.95. 1st Aid Software, 42 Radnor Rd., Boston, MA 02135. NCP (Jun 88)

FlashBack is a utility to back up HFS hard disks onto floppies. A ★★★ unique graphic display of the HFS directory facilitates file selection. The program can handle files larger than 800K. $59.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Nov 86)

Font/DA Juggler Plus gives you unlimited access to almost any ★★★★ number of fonts, desk accessories, and sounds. Uses hierarchical menus. $59.95. Alsoft, PO Box 927, Spring, TX 77383. NCP (May 88)

Glue adds a print-to-disk capability to many programs. *ImageSaver* ★★★★½ installs as printer driver; *Viewer* allows copying and printing of *Glue* files. Handy utility for desktop publishers. $59.95. Solutions International, Box 989, Montpelier, VT 05602. NCP (Dec 86)

Hard Disk Util uses patch files to allow users to mount and run ★★★★½ specified programs on their hard disks. The list of patches is constantly expanding. $89.95. FWB Software, 2040 Polk St., San Francisco, CA 94109. NCP

HFS Backup ranks as one of the preferred hard disk back-up utili- ★★★★½ ties. Back up by file/folder or last changes. Back-up specifications can be saved as templates. Good graphic interface. Reliable program. $49.95. PCPC, 4710 Eisenhower Blvd., Tampa, FL 33634. NCP (Dec 86)

HFS Locator Plus is *the* essential HFS desk accessory. It can ★★★★ search for a file by name or date of creation, create folders, move files from one folder to another, set a program to launch while in an application. $39.95. PBI Software, 1163 Triton Dr., Foster City, CA 94404. NCP (Sep 86)

Icon-It! (v. 1.0) lets you create icons to use as an alternative to ★★★★½ menu commands. Comes with 47 icon templates or you can create your own. $79.95. Olduvai Software, 7520 Red Rd., South Miami, FL 33143. NCP (Feb 88)

LabView is a graphical programming environment that creates "vir- ★★★★ tual instruments" to perform calculations, acquire laboratory data, and control instrumentation. Slow. Version 1.1 reviewed. $1900. National Instruments, 12109 Technology Boulevard, Austin, TX 78727-6204. NCP (Jul 88)

LaserServe is a printer spooler for AppleTalk networks. After instal- ★★★★★ lation all operations done via a desk accessory. Works with both *MacServe* and *TOPS*. Requires 512K+ and 800K drive or hard disk. $95 per node. Infosphere, 4730 SW Macadam Ave., Portland, OR 97201. NCP (Feb 87)

Mac Disk Catalog II is a utility that will quickly organize a moder- ★★★★ ate size disk library. Easy to use with powerful reporting and label-making features. $49.95. New Canaan MicroCode, 136 Beech Rd., New Canaan, CT 06840. NCP (Dec 85)

MacEZ-Mill is a CAM program that controls industrial milling ma- ★★★★½ chines. Quickly writes part programs that previously only very experienced designers could execute. $6000. Bridgeport Machines, 500 Lindley Street, Bridgeport, CT 06606. CP (Jul 88)

MacFlow is a design tool created for programmers. Traditional flow- ★★★½ charting symbols are linked together, and a symbol can be connected to a separate flowchart file. Symbols can't be edited, precluding using *MacFlow* for other applications. $195. Mainstay, 5211-B Derry Ave., Agoura Hills, CA 91301. NCP (Apr 87)

MacInUse tracks time spent in applications and saves info as text ★★★★★ files. Installs on any disk, works in background. MFS, HFS compatible. Extremely valuable for tax purposes, client re-

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cords, etc. $79. SoftView, 4820 Adohr Lane, Camarillo, CA 93010. NCP (Jan 87) ★'86 Eddy

MacLabeler lets users instantly index and print labels for all the ★★★½ disks in a burgeoning collection. Choose border type and orientation of your label; index by folder or document. Starter set of labels is included. $49.95. Ideaform, PO Box 1540, Fairfield, IA 52556. NCP (Prem)

MacNosy is a global disassembler. A very advanced user can use ★★★★★ this program to look into the code of virtually any program. This advanced tool can take you places no other Mac program could dream of going IF you have the skill to guide it. The documentation is sparse. For pros only. $90. Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025. NCP

MacSafe is a data file security program that allows you to place ★★★★ multiple files into a "safe," and then you can further protect them through two types of encryption (including DES). Flexible and very easy to use. Allows for installation on hard disk. $149.95. Kent Marsh Ltd, 1200 Post Oak Blvd., Houston, TX 77056. CP (Mar 87)

MacServe converts a Mac and a hard disk into a disk and print ★★★★½ server. Uses the AppleTalk network and is easily hooked up. Users can partition the hard disk into multiple volumes. Runs in the background, so users can work on all machines in the network. $250. Requires 512+. Infosphere, 4730 SW Macadam, Portland, OR 97201. CP

MacTree displays your files in the form of a hierarchical tree. Good ★★★½ idea, poor performance. Can't view tree easily. Good search function. Requires 512K+. $69.95. Software Research Technology, 22901 Mill Creek Dr., Laguna Hills, CA 92653. NCP (Apr 88)

MacZap is a three-part disk and memory utility. It can be used to ★★★★ recover some damaged files and disks, compare disks, analyze disk structure, and make back-up copies of most disks. $60. Micro Analyst, 2505 Roxmoor, Austin, TX 78723. NCP (Jan 86)

Menu Fonts displays the names of fonts in the actual font instead of ★★★ standard Chicago. Won't work with programs that have a nonstandard Font menu or no Font menu. Comes with *Lock-Out*, a utility that gives password access to your Mac, and *FastFormatter*, a utility for formatting multiple blank disks. Requires 512K+. $15. Beyond Software, 6069 E. Grant Rd., Tucson, AZ 85712. NCP (Jul 87)

myDiskLabeler is an excellent label maker. It can read directories ★★★★ and use large or small icons or anything desired. Comes with 54 precut labels. $44.95; with color printing ability (on the ImageWriter II), $54.95; with PostScript font capability (on the LaserWriter), $64.95. Williams and Macias, PO Box 19206, Spokane, WA 99219. NCP (Aug 87)

'Ncryptor is a simple safe program that lets users password their ★★★★ files. The same program is used for encoding and decoding. This is one of the best products in its category. $39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP

PackIt III is an essential utility. Primarily used to temporarily "glue" ★★★★½ files together, it can also compress and encrypt. Feeware. $10, $10 for printed manual. Harry R. Chesley, 1850 Union St., San Francisco, CA 94123. NCP (Jan 87)

PowerStation is an extremely easy-to-use, versatile and powerful ★★★★★ *Finder* substitute. Loaded with power user features. Comes with *Pyro!* $59.95. Fifth Generation, 1322 Bell Avenue, Tustin, CA 92680. NCP (Dec 87)

Printworks for the Mac is a comprehensive software-based dot-★★★★ matrix printer control system. Optimizes printing from different applications, and easy to use. Requires 512K+. $75. SoftStyle, 7192 Kalanianaole Hwy., Honolulu, HI 96825. NCP (Aug 87)

Programmer's On-line Companion puts an abridged version of ★★★ *Inside Macintosh* in your system for reference. Simply read the text or transfer some or all of it directly into your normal editing window. Non-Macish interface makes the program confusing, somewhat difficult to use. $34.95. Addison-Wesley, Route 128, Reading, MA 01867. NCP (Jul 87)

Quick & Dirty Utilities, Volume One is a disk full of handy pro-★★★★½ grams. Several desk accessories include a menu bar clock and a terminal emulator. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP (Nov 85) ★'85 Eddy

QuicKeys lets you make full use of your keyboard. Assign any com-★★★★★ mand (menu choices, DAs, etc.) or series of text blocks and/or command to any key or key combination. Enormously powerful; necessary for Apple Extended Keyboard owners. Requires 512K+. $99.95. CE Software, 1854 Fuller Road, West Des Moines, IA 50265. NCP (Jan 88) ★'87 Eddy

RamSnap is a RAMdisk and disk cache in one easy-to-use pack-★★★★ age. Can store multiple configurations as files. Good product but a little pricey. $59.95. Dove Computer Corp., 1200 North 23rd St., Wilmington, NC 28405. NCP (Jun 87)

Read-it! (v. 1.0) is the best consumer value in optical character ★★★★ recognition software. Works with any scanner that saves images as a bit map, PICT or TIFF file. Comes with type tables that can be customized. Version 1.1, $395; ThunderScan version, $149.95. Olduvai Software, 7520 Red Rd., South Miami, FL 33143. NCP (Apr 88)

Sentinel encrypts data files (or sets of files) using a super-secure ★★★★ DES or a super-fast SuperCrypt algorithm. Provides high-level security if you can keep your passwords secret. Requires 1M+. $149.95. SuperMac, 295 N. Bernardo Ave., Mountain View, CA 94043. NCP (Apr 88)

SmartScrap and The Clipper are two useful desk accessory utili-★★★★½ ties for graphics work. *SmartScrap* is a major enhancement to the standard Scrapbook DA. *The Clipper* provides you with a transparent Clipboard window, allowing you to resize or crop a graphic to the area that it will be pasted to. $59.95. Solutions International, PO Box 989, Montpelier, VT 05602. NCP (Jul 87) ★'87 Eddy

SoundWave is a useful sound recording and editing utility. Works ★★★★ with waveforms; able to change sampling rates. Previously known as *SoundCap*. $199.95. Impulse, 6870 Shingle Creek Parkway, Minneapolis, MN 55430. NCP (Apr 88)

Stepping Out is a software virtual screen extender. Lets you create ★★★★★ a screen as large as memory allows. 9-inch screen is a "view" to larger screen. Also has reduction features. Amazing. $95. Berkeley System Design, 1708 Shattuck Ave., Berkeley, CA 94709. NCP (Mar 88)

Suitcase is a transparent program that automatically lets you use ★★★★★ all your fonts and DAs. Foolproof and indispensible. Comes with *Pyro!*, the best screen saver. Requires 512K+. $59.95. Fifth Generation, 1322 Bell Avenue, Tustin, CA 92680. NCP (Nov 87) ★'87 Eddy

SuperLaserSpool is a LaserWriter spooler. Very fast because ★★★★ it does conversion to PostScript in the background, but doesn't print a faithful rendition of *PageMaker* documents as a result. $149.95 single user, $395.95 for up to five users on one network. SuperMac Software, 950 N. Rengstorff Ave., Mountain View, CA 94043. NCP (Jun 87)

Switcher is Andy Hertzfeld's contribution to Mac productivity. This ★★★★★ program lets users run several programs at once (up to 8 on a 1-megabyte or larger machine). Switching between the programs is nearly instantaneous. Requires 512K+. $19.95 from Apple, free from BBSs, included with some third-party applications. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP (Jun 86)

Tempo is a desk accessory that allows most Mac commands to be ★★★★ intelligently recorded and played back. Capabilities include pausing, conditional branching, and macros that work between applications. $99. Affinity Micro Systems, 1050 Walnut St., Boulder, CO 80302. NCP (Jul 86)

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MINIFINDERS



TMON is *the* debugger for the Mac. This isn't open to question. ★★★★★ *TMON* is simply the best. Comes with the latest version of Darin Adler's Extended User Area. $149. ICOM Simulations, 626 Wheeling Rd., Wheeling, IL 60090. NCP

Turbo Download is a desk accessory designed specifically to increase the speed of Xmodem data transfers from national databases to your Mac. Speed increases range upward from 50% to over 300% at 2400 baud. $39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP ★★★★½

Twelve-C Financial Desk Accessory brings all the power and functionality of a Hewlett-Packard 12C programmable calculator to your desktop. Can be programmed and all registers can be viewed while calculator is running. $39.95. Dreams of the Phoenix, PO Box 10273, Jacksonville, FL 32247. NCP ★★★★

TypeNow is a desk accessory that allows the Mac and ImageWriter to function as an electronic typewriter. Type can be placed into blanks in complex forms easily. Typing can be recorded and played back. $39.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jan 86) ★★★★

WorksPlus Command lets you build and define macros for all *Works* modules. Predefined macros provide for an even tighter integration of program's word-processing, spreadsheet, and database modules. Requires 1M+. $99.95. Lundeen & Associates, PO Box 30038, Oakland, CA 940604. NCP (May 88) ★★★★

LANGUAGES

AAIS Prolog is a fast standard Prolog with excellent debugging and error handling. Good for serious program development. Documentation is not as good as the program. $150. Advanced AI Systems, PO Box 39-0360, Mountain View, CA 94039-0360. NCP (Mar 87) ★★★★

Aztec C is a C language that will appeal to users with a UNIX background. It uses many UNIX conventions and in the more expensive versions comes with standard UNIX utilities, including the VI editor. $75 beginners, $199 basic system, $299 development system, $499 commercial system. Manx Software Systems, PO Box 55, Shrewsbury, NJ 07701. NCP (May 86) ★★★★

Basic Compiler is the long-awaited compiler for *Microsoft BASIC*. The interface is unfriendly, but it gets the job done. Compiled programs run faster, but you can still tell they are written in BASIC. $195. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP (May 87) ★★★½

ExperCommon Lisp is a LISP development system. Not fully Common LISP compatible, but creates good compiled code and standalone applications. Requires 1M+. $995. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. NCP (Aug 87) ★★★

ExperLISP is a useful programming language for high-level programmers. The more you use it, the more you'll figure out about it. $495. Requires 512K+. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP ★★★

ExperLogo is a version of the popular teaching language, Logo. Features three-dimensional graphics using "bunnies" rather than usual "turtles." Very speedy, smooth program. Comes with an excellent manual. $149.95. ExperTelligence, 559 San Ysidro Rd., Santa Barbara, CA 93108. CP ★★★

ExperProlog II is a Prolog based on the new Prolog II standard. Has the ability to handle infinite trees and allows user-defined functions that operate conditionally. Documentation is not the best and Mac interface is nonstandard. $495. ExperTelligence, 559 San Ysidro Blvd., Santa Barbara, CA 93108. NCP (Mar 87) ★★★

Lightspeed C provides an integrated environment for developing desk accessories, applications, and code resources in C. The editor works with the compiler for searches and file management. Can get awkward if you need something outside the environment. $175. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Apr 87) ★★★★½

Lightspeed Pascal is a fast, powerful development system for Pascal programming. Fully integrated Mac-like environment. Requires 512K+. $125. Think Technologies, 135 South Rd., Bedford, MA 01730. NCP (Feb 87) ★★★★★

LPA MacProlog (v. 2.0) is a much improved program that includes incremental and optimizing compilers, a graphics environment package, and C and Pascal submodules. Requires 1M+. $495. Programming Logic Systems, 31 Crescent Dr., Milford, CT 06460. NCP (Feb 88) ★★★★

MacAsm is a software development system that allows programs to be written in assembly language. Programmers can assemble, edit, and test software, and an integrated resource compiler lets independent applications run from their own icons. $125. Mainstay, 5311-B Derry Rd., Agoura Hills, CA 91301. NCP ★★★

Mac C is a good, highly Mac-oriented implementation of this popular development language. Assembler and linker included. $425. Consulair, 140 Campo Dr., Portola Valley, CA 94025. NCP ★'85 Eddy ★★★★

MacExpress is a development environment or shell. Programmers use it to save time and effort when developing standalone applications for the Mac. $195. ALSoft, PO Box 927, Spring, TX 77383. NCP (Feb 86) ★★★

MacForth Plus is an excellent implementation of the popular Forth programming language. New, reduced price, $199. Creative Solutions, 4701 Randolph Rd., Rockville, MD 20852. NCP ★★★★

Mach II is a multitasking implementation of Forth that allows local variables and text files. Can create standalone applications. Several windows can be up with different operations in each, operating concurrently. Execution is fast. $99.95. Requires 512K+. Palo Alto Shipping, PO Box 7430, Menlo Park, CA 94026. NCP (Apr 86) ★★★★

Macintosh 68000 Development System is a fairly traditional assembly language package. The two-disk set provides an editor (*Edit*), an assembler, a linker, an executive, and a resource compiler. $195. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. NCP ★★★★

Macintosh Pascal is Apple Computer's version of this very popular programming language. Loaded as it is with innovative teaching features, this interpreter is an excellent introduction to Pascal. $125. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. CP ★★★

MacScheme is a LISP dialect with "artificial intelligence" capabilities. Has a large appetite for RAM. Interpreted language with Toolbox access limited to a small part of QuickDraw. $125. Semantic Microsystems, 4470 S.W. Hall St., Beaverton, OR 97005. NCP (Jun 86) ★★★

MacScheme+Toolsmith is a Mac version of Scheme, a LISP dialect. Beautiful implementation, marred only by relative slowness compared to similar products. Get *Toolsmith*. Requires 1M+. $395. Semantic Microsystems, 4470 S. W. Hall, Beaverton, OR 97005. NCP (Aug 87) ★★★★★

Megamax C is an easy-to-use, full version of C. Has a compiler, linker, disassembler, editor, and much more. Good for beginners. Excellent documentation. $299.95. Megamax, PO Box 851521, Richardson, TX 75085. NCP ★★★★

Microsoft BASIC was the Mac's first programming language. This interpreter (it's not a compiler) now supports the Toolbox and the whole Mac interface can be implemented in your programs. For nonprogrammers there are lots of programs available. $99. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. NCP ★'85 Eddy ★★★★

MIDIBasic is a library of simple, but highly useful routines for writing MIDI software. Good stuff. Sketchy documentation. Works with both *Microsoft* and *ZBasic*. Requires 512K+ plus BASIC. $49.95. Altech Systems, 831 Kings Highway, Shreveport, LA 71119. NCP (Aug 87) ★★★★



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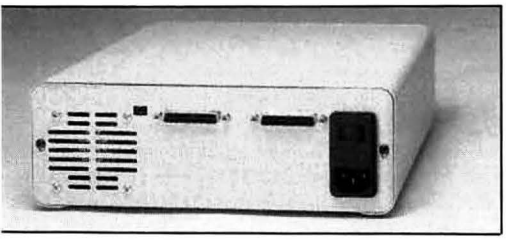
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MINIFINDERS

Object Logo is an object-oriented programming language with access to the Toolbox. Good product, but can't produce standalone applications. Requires 512K+. $79.95. Coral Software, PO Box 307, Cambridge, MA 02142. NCP (Aug 87)

Personal Prolog is an inexpensive and well-documented program. Has no debugging or search and replace facilities, making it a more appropriate tool for learning than development. Documentation and use of Mac interface are excellent. $64.95. Optimized Systems Software, 1221 B Kentwood Ave., San Jose, CA 95129. NCP (Mar 87)

Prolog/m is a solid Prolog following the Edinburgh standard. Has extensive debugging facilities, but you'll need separate *Toolbox* disk with 58 additional predicates. Drawback: no true editing or printing facilities. $99.95. Chalcedony Software, 5580 La Jolla Blvd., La Jolla, CA 92037. NCP (Mar 87)

QUED (Quality Editor for Developers) is the ultimate source code editor. Loaded with useful and well thought out features, it will make any programmer's life much easier. It is not a word processor, however. $65. Paragon Concepts, 4954 Sun Valley Rd., Del Mar, CA 92014. NCP (Mar 86)

TML Data Base Toolkit is an ISAM type database that provides fast and efficient administration of large data files in applications developed with *TML* compiler. Supports multiple open index files. $89.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

TML (MacLanguage Series) Pascal is a good Pascal compiler, capable of producing standalone programs. Can use most existing Lisa Pascal programs with only slight modification. Requires 512K+. $99.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Jun 86) ★'86 Eddy

TML Source Code Library shows how to write programs that use custom definition routines, speech, serial drivers, split bars, and other topics. Provided on three 400K diskettes. Requires *TML Pascal*. $79.95. TML Systems, 4241 Bay Meadows Rd., Jacksonville, FL 32217. NCP (Dec 86)

Visual Interactive Programming is a unique visual programming system for creating simple Macintosh applications. Programs are constructed in a flowchart-type manner. Easy access to most toolbox routines. Poor printing control. $124.95. Mainstay, 5311-B Derry Ave., Agoura Hills, CA 91301. NCP (Jun 87)

ZBasic is a fast, interactive compiler capable of creating standalone applications that take advantage of Mac's unique features and abilities. Includes *Edit*, *RMaker* and *MacInTalk*. Requires 512K+. $89.95. Zedcor, 4500 E. Speedway Blvd., Tucson, AZ 85712. NCP (Dec 86)

EDUCATION

Alphabet Blocks teaches prereaders the letters and sounds of the alphabet. The digitized voice of an on-screen elf is clear and pleasant. Very intuitive. Requires 1M+. $49.95. Bright Star Technology, 14450 N.E. 29th Place, Bellevue, WA 98007. NCP (May 88)

American Discovery is an interactive United States geography game that teaches states, capitals, and, in a roundabout manner, postal codes. Suffers from small maps. Requires 512K+. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (May 88)

Business Simulator is a training tool in a simulation game. Make decisions that manage the company through several stages over 25 years. Decisions become more difficult over time. Requires 1M+, 2 disk drives (one must be 800K). May be run from a hard disk. $69.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. NCP (Dec 87)

ChipWits is a combination game and teaching tool. Players create programs to maneuver robots through a set of 8 mazes. The programs are written in *ChipWit*'s built-in icon-based programming language (IBOL). $49.95. BrainPower, 24009 Ventura Blvd., Calabasas, CA 91302. NCP ★'85 Eddy

Course Builder (version 2.0) creates standalone educational applications. An easy-to-learn dedicated programming language uses blocks and arrows. Graphics, animation and sound can be integrated. Version 2 allows mathematical calculations. Poor documentation. $395, plus $10 shipping. TeleRobotics International, 8410 Oak Ridge Highway, Knoxville, TN 37931. NCP (Oct 87)

KidsTime is a package of five quality educational programs for children between the ages of 3 and 12. The programs all have adjustable difficulty levels. Some use speech and one is a nice introduction to musical notes. Sparse documentation. $49.95. Great Wave, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Oct 86) ★'86 Eddy

LearnWord 3.0 is a three-part series of cassette tape/diskette modules that explain the intricacies of *Word* 3.0. They do the job, but remind you why cutting classes was more fun. $49.95 per module. Personal Training Systems, PO Box 54240, San Jose, CA 95154. (Apr 88)

LXR•Test generates tests from a database of questions. Makes it easy to modify and scramble test questions. Flexible output. Requires Mac 512E+, two 800K drives, or a hard-disk drive. $199 or $399, depending on features. Logic eXtension Resources, 9651 Business Center Dr., Rancho Cucamonga, CA 91730. NCP (May 88)

MacEdge and **MacEdge II** each contain 8 reading or math drill programs for basic skills. Programs follow one of three formats, a bit contrived. Contrivances are design flaws. $49.95 each. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP

MacType offers structured typing instruction. Can teach both standard and Dvorak keyboards. Features include certificates for reaching certain levels. Can be used in a multistudent environment. $49.95. Palantir Software, 12777 Jones Rd., Houston, TX 77070. CP

MasterType is proof that learning to type can be fun. In this arcade-style action game words descend from four corners towards the center ship; the user must type them correctly. Features 18 skill levels, tracks errors, recommends lessons and provides comparison scores. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP

Practica Musica uses an interactive game and practice approach to teach music theory and ear training. Excellent training tool for the serious music student, it is also fun for anyone who wants to develop a trained ear for intervals, chords, and melodies. Requires 512K+. $125. ARS Nova Software, P.O. Box 40629, Santa Barbara, CA 93140. NCP (Nov 87) ★'87 Eddy

Reader Rabbit teaches 4-to-8-year olds how to read in four elegant games that play and build off of each other. Requires 512KE+ and an 800K drive. Mac II and *MultiFinder* hostile. Version 2.0 reviewed. $59.95. The Learning Company, 6493 Kaiser Dr., Fremont, CA 94555. CP (Jun 88)

Sensei Physics is a capable, intelligent, well-designed study aid. Covers Vectors to Thermodynamics to The Nature of Light. Animated experiments let you try out concepts. Requires 512K+. $99.95. Broderbund Software, 17 Paul Dr., San Rafael, CA 94903. CP (Jan 88)

SubII-Mac is a self-hypnosis program, combining subliminal, relaxation, and positive-self-image techniques. Flashes a brief user-written message (against a diversionary pattern) at your subconscious. Dangerous near hard disks. Manual suffers from terminal California-ese. $39.95. Psy-Den, PO Box 248, Champlain, NY 12919. NCP (Jan 88)

MINIFINDERS



ENTERTAINMENT

A Mind Forever Voyaging is a departure in text adventure games. It ♦♦♦ has a more extensive vocabulary and a more involved story than most of the genre. The story here is gripping, but there are only a few puzzles to solve. Requires 512K+. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Apr 86)

Alter Ego simulates the entire lifetime of a fictional character. The ♦♦♦♦ player's reaction to each multiple-choice event shapes the character's future relationships, job, health, etc. Spectacular the first time you play; after that there are too many similarities to previous characters. $59.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. CP (Jun 86)

The Ancient Art of War gives users a chance to refight some ♦♦♦♦½ famous campaigns on both strategic and tactical levels. Campaigns can also be designed from scratch. Very playable, addicting game. Requires 512K+ Mac. $44.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Apr 86)

Apache Strike would have been an excellent arcade game in the ♦♦ late '70s. Now, it's passe. Navigate a helicopter to destroy ever-increasing numbers of enemy aircraft and tanks. Mac II hostile. Requires 512K+. $49.95. Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. NCP (Jul 88)

Balance of Power is the world's first computer peacegame. This ♦♦♦♦♦ simulation allows players to become either the President of the United States or General Secretary of the Soviet Union. Extraordinary artificial intelligence routines and general play make this a classic. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60022. CP (Prem)

Battle Stations is a deceptively simple game based on the pen and ♦♦♦♦ paper game of *Battleship*. Requires strategy on several levels. Makes excellent use of Mac sound and graphics. Fun, casual game, especially when the Mac is one of the players. Requires 512K+. $30. Timeline, PO Box 60, Ypsilanti, MI 48197. NCP (Jun 87)

Beyond Dark Castle brings back Prince Duncan in an encore per- ♦♦♦½ formance to run, jump, and beat his way to victory. But really, just more of the same. Requires 512KE. $49.95, Silicon Beach Software, P.O. Box 261430, San Diego, CA 92126. NCP (Aug 88)

Beyond Zork is yet another installment in the famous *Zork* series of ♦♦♦♦½ text adventures. Find the fabled Coconut of Quendor to restore failing magic in this expert-level game. On-screen mapping and the Mac's window environment are taken advantage of. $49.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Apr 88)

Bridge 4.0 provides three other players and the cards for a game of ♦½ rubber bridge. It's an average (Goren) bidder and a less than good card player. Good if it's the only game in town. Plays slowly since it's written in BASIC. $29.95. Artworx Software, 150 N. Main St., Fairport, NY 14450. CP (Sep 86)

Bureaucracy is a paranoiac text adventure that dares you to move ♦♦♦½ to a new house and job and still maintain some degree of sanity, not to mention a low blood pressure. Written by Douglas Adams of *Hitchhiker's* fame. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Aug 87)

The Chessmaster 2000 is a masterful chess program that will ♦♦♦♦♦ appeal to both novice and master. You can view the board from 2- or 3-D perspective and turn the board for a better look. Play is smooth and easy, and the program responds by voice. You may get tired of hearing "Gotcha," though. $39.95. The Software Toolworks, 13557 Ventura Blvd., Sherman Oaks, CA 91423. CP (Jul 87)

Crystal Quest combines all the good elements of nearly every video ♦♦♦♦½ game ever made. Move a piece around to gobble up points and crystals. Shoot the nasties and get through the goal before they get you. Excellent sound effects. In color on the Mac II. Requires 512K+. Greene, 15 Via Chualar, Monterey, CA 93940. CP (Apr 88)

Dark Castle is an outstanding achievement in action games which ♦♦♦♦♦ integrates RealSound with superb animation and graphics. You'll need better-than-average hand/eye coordination, but it's well worth the effort. Requires 512K+. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Apr 87) ★'87 Eddy

Deja Vu: A Nightmare Comes True is a graphic adventure that ♦♦♦♦♦ breaks new ground. Innovative use of the Mac interface in truly playable and exciting game. A great introduction to graphic adventure games. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Jan 86) ★'85 Eddy

Dinner at Eight is a useful recipe filing system that includes a ♦♦♦♦ collection of recipes from a nationwide sampling of restaurants. Users enter number of diners and program scales recipes. $49.95. Rubicon, 2111 Dickson Dr., Austin, TX 78704. NCP (Jan 86)

Down Hill Racer is an action game with three skier personalities, ♦♦♦♦ four courses and four skill levels. There's something here for every player, no matter how bad or good. Full digitized sound (very nice!) $49.95. Miles Computing, 7741 Alabama Ave., Canoga Park, CA 91304. CP (Sep 87)

Enchanted Scepters is a surround-sound graphic adventure game. ♦♦♦♦ It has a limited vocabulary and virtually no story. Offers extensive and varied scenes and utilizes the Mac interface to the fullest. $39.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. CP (May 86)

Falcon simulates an F-16 fighter jet with gut-tightening, sweat- ♦♦♦♦½ making realism. Go against MiGs and dodge SAMs scenarios. Requires 1M+. $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. NCP (May 88)

Ferrari Grand Prix is an exciting race car simulation game. Master- ♦♦♦♦ ing it takes quite a bit of time and effort. Startup course and four other courses are built into the program. You can also design your own courses and backgrounds. Requires 512K+. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Jul 87)

Flight Simulator puts you at the controls of a small plane (prop or ♦♦♦♦ jet) and lets you roam North America. As difficult as real flying. Mac version has features not found on earlier versions, including spotter aircraft. Not all features available on 128K. $49.95. Microsoft, 16011 NE 36th Way, Redmond, WA 98073-9717. CP (Nov 86)

Fokker Triplane is about as near to flying as you can get seated in ♦♦♦♦ front of a computer. Very realistic simulation and excellent graphics. Well-designed and implemented. $59.95. Bullseye Software, PO Drawer 7900, Incline Village, NV 89450. CP (Feb 86)

Fool's Errand is an outstanding collection of 80 puzzles woven ♦♦♦♦♦ around a mythical theme of an evil priestess and the search for wisdom. Requires 512K+. $49.95. Miles Computing, 7741 Alabama Avenue, Canoga Park, CA 91304.MCP (Jul 88)

Gato puts players in command of an American submarine in World ♦♦♦♦½ War II. This superb simulation game uses all of the Mac's graphic capabilities to really make you feel that "you are there." $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. CP (Nov 85)

GO is the Chinese equivalent of chess. Players *plonk* markers on a ♦♦♦½ grid to gain territory and outwit an opponent or the computer. Requires 512K+. Mac II hostile; *MultiFinder* friendly. Version 1.0 reviewed. $49.95. Infinity Software, 1144 65th St., Studio C, Emeryville, CA 94608. NCP (Jun 88)

Handwriting Analyst produces a personality profile based on an- ♦♦♦♦½ swers to questions about one's handwriting. It's simple and the results will amaze and astound. $49.95. Ciasa, 2017 Cedar St., Berkeley, CA 94709. NCP (Apr 88)

MINIFINDERS



HardBall is a baseball simulation game complete with umpire's calls and crowd sounds. Great graphics and a lot of fun for fans. $44.95. Accolade, 5500 S. Winchester Boulevard, San Jose, CA 95128. CP (Feb 87)

Hollywood Hijinx substitutes a modern Hollywood estate for the famous Underground Empire, but otherwise represents a return to *Zork* gameplay and feel. There's even a maze to navigate. Simplistic, but good. $39.95. Infocom, 15 CambridgePark Dr., Cambridge, MA 02140. NCP (Jun 87)

Klondike 3.3 is a version of solitaire that uses video game-like scoring to create a superb, totally addictive game. Simple to play, nearly impossible to stop playing. Shareware: $10. Unison Software, 415 Clyde Ave., Mountain View, CA 94043. NCP (Dec 87)

Leather Goddesses of Phobos is another in the long line of witty and entertaining Infocom text adventures. This one lets you choose your sex and comes with a 3-D comic and a scratch 'n sniff card. It has three levels of play: tame, suggestive and lewd. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Feb 87)

Lode Runner is a 150-screen action-strategy challenge. Move around a grid of ladders and platforms collecting treasure; dig a hole to trap pursuers. Build your own challenges. $39.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP

MacCourses adds four very challenging new courses to *MacGolf.* Courses are swapped on the original *MacGolf* master disk two at a time. Nice add-on for a good game. Requires *MacGolf.* $34.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (Apr 87)

MacGolf is a dynamic simulation of real golf. Players have a choice of courses and difficulty levels. Superb playability makes this a must for all golfers and gamers. Requires 512K+. $59.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (May 86)

MacMan is a two-part package. The software portion is a decent *PacMan*-like game. The hardware part is a tiny converter that lets you use a joystick with a Mac or Mac Plus. $39.95. Nuvo Systems, 225 Tank Farm Rd., San Luis Obispo, CA 93401. CP (Aug 87)

Mac Pro Football is a terrific sports simulation that gives you the chance to pit any combination of 38 Super Bowl teams against each other and direct team play. It comes with excellent, detailed (and necessary) documentation. Play selection can get a bit Byzantine. $49.95. Avalon Hill, 4517 Harford Rd., Baltimore, MD 21214. CP (Mar 87)

MacRacquetball uses digitized videos and sounds of professional players for a realistic simulation. Has lots of control settings and can be played against someone else over a modem or between hard-wired Macs. Turn off hard disks before playing. $59.95. Practical Computer Applications, 1305 Jefferson Hwy., Champlin, MN 55316. CP (Oct 87)

Maze Survival challenges players to destroy maze walls before roving bugs squash themselves against it. Bugs lay eggs to spawn a new generation. Repetitive. $34.95. Olduvai Software, 7520A Red Road, South Miami, FL 33143. NCP (Aug 87)

MazeWars+ is an interactive, multiplayer game to be played on AppleTalk or through a modem link. Chase opponents through a four-level maze. Requires 512K+, AppleTalk or Hayes-compatible modem. $49.95. MacroMind, 1029 W. Wolfam, Chicago, IL 60657. NCP (Nov 86)

MicEdGames is a collection of five educational games, MicAlphabetize, MicTime, MicStates, MicMatch and MicSpell, supposedly for ages 5 to adult. Games are sometimes cute but generally poorly designed. Manual is poorly written. Some entertainment value. $19.95. MicEdWare, 4265 Midland Rd., Saginaw, MI 48603. NCP (Dec 87)

Mind Over Mac features five games. Entertainment for the whole family. Good graphics paired with synthesized sound and on-screen help. $49.95. Think Educational Software, 16 Market St., Potsdam, NY 13676. CP (Feb 86)

MoonMist is an introductory level text adventure game. This is a typical haunted English castle story, not quite up to Infocom's best. It has four versions, so it's good for more then one play. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (May 87)

MSFL: Pro League Football is a professional football league simulation that encourages people to play people, not the machine. Fast with lots of stats. Quirky MS-BASIC behavior. Spotty manual. No LaserWriter support. Requires 1M+. $49. MicroSports, PO Box 15799, Chattanooga, TN 37415. NCP (Apr 88)

NewGammon is animated backgammon that will challenge even good players. Features include variable skill levels and strategies and options to play the Mac or watch the Mac play itself. An arcade-like high speed mode is included. $39.95. Newsoft, PO Box 3046, Newport Beach, CA 92663. CP

NFL Challenge simulates coaching and watching professional football. Comes on two disks, one with program and *System,* the other statistical data. Play against either human or computer coaching. Plays are selected from pre-defined playbooks. $99.95. XOR Corp., 5421 Opportunity Ct., Minnetonka, MN 55343. NCP (Jun 87)

Ogre is a strategy tank game played on a hexagon grid. The ogre is an intelligent cybertank out to smash your command post. Customize your defense. Exceptionally good Mac interface. Has two-player option. $30. Origin Systems, 136 Harvey Rd., Building B, Londonderry, NH 03053. CP (Nov 87)

Orbiter puts a real space shuttle on the Mac screen. A multitude of controls, intelligent on-board computer with speech capabilities, real-time graphics, and 16 distinct missions help this program succeed as both a game and a simulation. $49.95. Spectrum HoloByte, 2061 Challenger Dr., Alameda, CA 94501. NCP (Jul 86)

Orbquest is a fantasy role-playing adventure with better-than-average puzzles and an excellent sense of humor. Not as sophisticated as some, but a good value. $49.95. QWare, PO Box 850415, Richardson, TX 75085. CP (Dec 86)

Patton vs. Rommel is a traditional-style strategic war game. It covers events in Normandy in 1944. While complex, it's well-designed and very playable. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Apr 87)

Pinball Construction Set lets users create their own pinball games, as elaborate or as easy as desired. Uses *MacPaint* for backgrounds and has lifelike sounds (on 512K+ Macs). $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jan 86)

Plundered Hearts brings gothic romance to interactive fiction in the familiar Infocom mode of puzzles, mazes, and riddles. You play a 17th-century heroine dodging pirates to rescue her wrongly imprisoned father. Medium difficulty. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. CP (Jan 88)

Portal is an intriguing science fiction novel for kids that suffers from having a poor interface. Storyline: All of humanity is missing and you have to search through a database for files that reveal the mystery. Nothing in the way of role-playing, and the Mac version is slow and buggy. $49.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. CP (Oct 87)

Puppy Love is a combined game and teaching tool. As you teach your puppy tricks and routines, you learn the basics of programming logic. Great fun for all ages. Does not run from a hard disk. $29.95. Addison-Wesley, Route 128, Reading, MA 01867. CP (Mar 87)

MINIFINDERS



Quarterstaff (v. 1.2) is a fantasy adventure game of the typical ★★★★ "good vs. evil" variety. Ability to use characters in other adventures gives this game a lot of potential for development. Requires 1M+. $49.95. Simulated Environment Systems, 800 South Pacific Coast Hwy., Redondo Beach, CA 90277. NCP (Mar 88)

Seven Cities of Gold is an educational program masquerading as ★★★★ an adventure game and is practically unique in being equally good in both respects. You are to land (not the easiest part) in the New World and attempt to placate the natives, seed a few missions and collect gold. Nice work if you can get it. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jun 87)

Shadowgate is an icon-based graphic adventure. You, as the seed ★★★★½ of prophecy, must save the world from the evil warlock. Far surpasses all others with great animated graphics, sound, and adventure. $49.95. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Dec 87)

Shanghai challenges players to clear a board of all 144 tiles by ★★★★★ matching pairs of mah-jongg tiles and removing them. Terrific strategic options plus the ability to randomly generate new game boards keep this one fresh. $44.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. CP (Nov 86) ★'86 Eddy

Skyfox is a sophisticated 3-D shoot-em-up. You're fighting tanks, ★★★ planes and enemy cities floating in the sky. Fast graphics, good sound, slick, on-board attack computer and many levels of difficulty will keep fans of this genre happy for hours. $39.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Oct 86)

Smash Hit Racquetball is an accurate and entertaining simulation ★★★★½ of a day on the courts. Digitized sound adds to the realism. Includes a hard-disk install, unusual for a game. The low price makes this the perfect Mac gift. $19.95. Primera Software, 650 Cragmont Ave., Berkeley, CA 94707. CP (Dec 86)

Snake-Bar lets you guide a snake (or train or semi) through a maze, ★★★★ picking up objects that feed and make your snake grow. Options include changing languages, editing the maze, and an X-rated game. $15. (shareware). Georges Malmound, 37 Bis rue des Abbesses, Montmartre, 75018 Paris, France. NCP (Dec 87)

Solitaire Royale is a collection of eight solitaire card games. The ★★★★ Tour mode cycles through each game. Tournament deals the same hand for several players. $34.95. Published by Spectrum Holobyte, 2061 Challenger Dr., Alameda CA 94501. CP (May 88)

Space Quest is a three-dimensional, animated adventure in which ★★★★ you play a janitor in a dicey situation. All you have to do is get off your ship before it explodes and save the Earnon System. Runs on any Mac. $49.95. Sierra On-Lin, PO Box 485, Coarsegold, CA 93614. CP (Sep 87)

Star Fleet I: The War Begins! is a space opera of the *Star Trek* ★★★★ variety. Rise through the ranks from ensign to admiral in this serialized adventure. Requires 512K+. $55. Interstel, PO Box 57825, Webster, TX 77598. NCP (May 88)

Stationfall is the sequel (finally) to Infocom's excellent *Planetfall* ★★★★½ text adventure. Reunited with Floyd and sent to pick up requisition forms, you must solve the empty space station problem. As straightforward as other Infocom games; more so than some. $39.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP (Nov 87)

Strategic Conquest Plus challenges you to discover an unexplored ★★★★½ world and conquer it by manufacturing and deploying armies, ships, and planes. A two-disk game that doesn't support an external drive. Requires 512K+. $59.95. PBI Software, 1111 Triton Dr., Foster City, CA 94404. CP (Feb 88)

Sub Battle Simulator is a superior naval combat game. Sixty ★★★★ different missions and the ability to link missions keep it from ever getting boring. Requires 512K+. $39.95. Epyx, PO Box 8020, Redwood City, CA 94063. NCP (Aug 87)

Tass Times in Tone Town is a slightly off-the-wall graphic adven- ★★★½ ture in which you need a flashy hairdo and a jumpsuit before you can get anywhere, and you pay for things with guitar picks. Decent puzzles, with a sense of humor. $4.95. Activision, 3885 Bohannon Drive, Menlo Park, CA 94025. CP (Jan 87)

The Toy Shop is a construction kit for building 20 different working ★★★★ model toys. Some parts can be customized. Manual gives clear instructions, but many toys are too complex for a child. $49.95. Broderbund, 17 Paul Dr., San Rafael, CA 94903. CP (Nov 86)

Trust & Betrayal: The Legacy of Siboot requires negotiating with ★★★★½ 6 artificial personalities in a struggle for power — not surprising considering that it comes from the maker of *Balance of Power.* Uses hieroglyphics to communicate in a fantasy world. Requires 512K+. Mindscape, 3444 Dundee Rd., Northbrook, IL 60062. CP (Mar 88)

Ultima III allows up to four characters to cooperate to explore the ★★★★½ vast wilderness of Sosaria. $59.95. Origin Systems, 340 Harvey Rd., Manchester, NH 03103. CP

Uninvited is an icon-based adventure game set in an extremely ★★★★★ haunted mansion. Since you access the parser by double-clicking, command choices are always visible — you don't waste time trying to figure out which words the program understands. It has animation and sound. $49.95. Mindscape, 3444 Dundee, Northbrook, IL 60062. CP (Sep 86) ★'86 Eddy

Winter Games lets up to eight players compete against each ★★★★ other in Olympic events including figure skating, bob sledding, biathlon, and ski-jumping. Excellent animation, good graphics, good theme music. $39.95. Epyx, 600 Galveston Dr., PO Box 8020, Redwood City, CA 94063. CP (Mar 86)

Wizardry is an outstanding dungeon exploration adventure pitting a ★★★★★ party of up to six characters against the guardian monsters of the evil wizard Werdna. Capture his amulet to earn your reward. Even after solving the game, you'll want to go back into the dungeon. $59.95. Sir-Tech, Charlestown-Ogdensburg Mall, PO Box 245, Ogdensburg, NY 13669. CP

WordPlay is a word game with over 50 crossword puzzles for differ- ★★★★ ent levels of expertise. User friendly, it offers on-screen Help menus. A Work mode allows development of new puzzles for the creative. $49.95. Palantir, 12777 Jones Rd., Houston, TX 77070. NCP (Mar 86)

World Builder is an adventure game construction set with what ★★★★½ amounts to its own programming language. The whole program (language included) is easy to learn and produces commercial quality games. No support for the programming language, though. $79.95. Silicon Beach, PO Box 261430, San Diego, CA 92126. NCP (Apr 87)

Xyphus is a role-playing game pitting four characters (fighters or ★★★★ wizards) against multiple scenarios that grow increasingly harder. Excellent Mac interface and icon control. $39.95. Penguin, PO Box 311, Geneva, IL 60134. CP

Your Personal Poet creates personalized greeting cards on the ★★★½ Mac. Comes complete with four greeting cards and matching envelopes. Requires 512K+. $29.95. Computer Poet, 775 E. Greg St., Sparks, NV 89431. NCP (Jun 87)

Zork II is where the adventure continues in the underground ★★★★½ empire. A wandering wizard keeps things interesting, though there's a way to beat him if you persevere. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP

Zork III is the final chapter in the trilogy. Players come up against the ★★★ ultimate enemy — the Dungeonmaster himself. More

AD INDEX

RS#	ADVERTISERS	PAGE
47	68000	79
63	Aatrix Software	34
163	Aba Software, Inc.	80-81
2	Abvent	254
183	Access Technology	238-239
NA	Acius	32
NA	Adobe	23
117	Adobe	226-227
71	Alsoft	275
205	Altsys	279
NA	Anthro Corporation	6
40	AppleCrate	287
99	Ashton-Tate	38-39
124	Ashton-Tate	146-147
190	AST Research, Inc.	87
15	Bedford Software Corp	156
7	Bering Industries	157
23	Berkeley Systems	144
67	Beverly Hills Computers	117
158	Borland	47
8	BrainPower, Inc.	187
76	Bravo Technologies Inc.	133
74	Budget Bytes	276
NA	Cambridge Marketing	284-285
175	Casadyware	40
89	CDA Computer Sales	46
38	CE Software	129
105	Central Point	125
162	Ceres Software	29
6	Checkmark	206
112	Citizens Computer Co.	59
NA	Claris	154-155
37	CMO	214-215
NA	Compatible Systems	245
79	Compugraphics	28
46	CompuServe	252
202	Computer Cover Co.	265
98	Computer Friends	219
106	Coral Software	277
134	Cricket	191-193
104	Cutting Edge, Inc.	265
84	Deneba Software	5
53	Design Science	256
80	Dest	176-177
96	Diehl Graphsoft	78
120	Diskette Connection	264
34	DPI	251
108	Dubl-Click	148
18	E-Machines	137
10	Eastman Kodak	145
187	Ergotron	278
151	Everex Systems	246
4	Farallon	C6
146	Fifth Generation Systems, Inc.	82
167	Fifth Generation Systems, Inc.	237
22	Fox Software	10
139	GDT Software Inc.	280
13	GEISCO	231
136	General Computer	233
154	General Computer	271
1	Generic Software	267
103	Gimeor	89
129	Great Plains	66-67
174	Greene, Inc.	40
26	Hardware House	12
172	Icom Simulations	178
3	Imagine That Inc.	35
148	Innovative Software	74
11	Insignia	76
65	Intuit	37
57	James River	199
44	Jasmine Technologies	106-107
128	Jasmine Technologies	202-203
144	Kensington	60-63
168	Kent Marsh Ltd.	29
168	Kent Marsh Ltd.	31
185	Laser Connection	162
191	Laser Connection	163
NA	Mac Connection	110,110A-D,111
83	MacLand	141
179	MacPeak	99
28	MacProducts USA	65
165	MacStore, Inc.	280
30	MacWarehouse	90-93
NA	MacZone	48-51
194	Manx Software Systems	179
181	Mass Micro	57
88	Max Stax	259
145	Mega Graphics	153
189	Micro CAD/CAM	190
102	Microlytics	23
110	Microlytics	75
81	Micron Tech	221
78	Micropro	100-101
NA	Microsoft Corporation	C2-3-4-P1
140	Microtech International	173
51	Microtech International	175
159	Mirus	14-15
186	MSC Technologies, Inc.	229
91	Nashoba	134-135
72	National Instruments	235
116	Nutmeg	211
118	Olduvai Corporation	20
87	Open Mac Enterprises	95
59	Passport Designs	225
73	Peripherals Computers & Supplies	78
12	Personal Computer Peripherals Corp.	68
60	Personal Training Systems	207
33	Postcraft International	245
193	Precision Data Products	264
69	Programs Plus, Inc.	70-73
85	Quark, Inc.	201
131	Radius	24-25
NA	Round Lake Publishing Co.	31
150	Safeware	256
157	SBT Corporation	166
NA	Seybold Show	281
127	Sher-Mark	257
200	Sigma Designs	13
203	Software Discoveries	16
115	Software Library	43
152	Software That Fits	168-171
161	Solutions International	143
177	Sony	18
147	Survivor	97
170	Symantec/Think Tech	7
197	Symantec/Think Tech	21
100	Symantec/Think Tech	27
93	Symantec/Turner Hall	17
49	Symmetry Corporation	36
62	T/Maker Company	189
29	T/Maker Company	C5
122	Tecmar	30
166	Tektronix	119-121
NA	Texas Instruments	184-185
130	Tops	8-9
121	Traveling Software	96
123	Tussey Computer Products	22
109	USA Flex	265
178	Warp 9	139
43	Wenger/Coda	240
133	Word Perfect	126-127

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1 11 21 31 41 51 61 71 81 91	101 111 121 131 141 151 161 171 181 191	201 211 221 231 241 251 261 271 281 291
2 12 22 32 42 52 62 72 82 92	102 112 122 132 142 152 162 172 182 192	202 212 222 232 242 252 262 272 282 292
3 13 23 33 43 53 63 73 83 93	103 113 123 133 143 153 163 173 183 193	203 213 223 233 243 253 263 273 283 293
4 14 24 34 44 54 64 74 84 94	104 114 124 134 144 154 164 174 184 194	204 214 224 234 244 254 264 274 284 294
5 15 25 35 45 55 65 75 85 95	105 115 125 135 145 155 165 175 185 195	205 215 225 235 245 255 265 275 285 295
6 16 26 36 46 56 66 76 86 96	106 116 126 136 146 156 166 176 186 196	206 216 226 236 246 256 266 276 286 296
7 17 27 37 47 57 67 77 87 97	107 117 127 137 147 157 167 177 187 197	207 217 227 237 247 257 267 277 287 297
8 18 28 38 48 58 68 78 88 98	108 118 128 138 148 158 168 178 188 198	208 218 228 238 248 258 268 278 288 298
9 19 29 39 49 59 69 79 89 99	109 119 129 139 149 159 169 179 189 199	209 219 229 239 249 259 269 279 289 299
10 20 30 40 50 60 70 80 90 100	110 120 130 140 150 160 170 180 190 200	210 220 230 240 250 260 270 280 290 300

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1 11 21 31 41 51 61 71 81 91	101 111 121 131 141 151 161 171 181 191	201 211 221 231 241 251 261 271 281 291
2 12 22 32 42 52 62 72 82 92	102 112 122 132 142 152 162 172 182 192	202 212 222 232 242 252 262 272 282 292
3 13 23 33 43 53 63 73 83 93	103 113 123 133 143 153 163 173 183 193	203 213 223 233 243 253 263 273 283 293
4 14 24 34 44 54 64 74 84 94	104 114 124 134 144 154 164 174 184 194	204 214 224 234 244 254 264 274 284 294
5 15 25 35 45 55 65 75 85 95	105 115 125 135 145 155 165 175 185 195	205 215 225 235 245 255 265 275 285 295
6 16 26 36 46 56 66 76 86 96	106 116 126 136 146 156 166 176 186 196	206 216 226 236 246 256 266 276 286 296
7 17 27 37 47 57 67 77 87 97	107 117 127 137 147 157 167 177 187 197	207 217 227 237 247 257 267 277 287 297
8 18 28 38 48 58 68 78 88 98	108 118 128 138 148 158 168 178 188 198	208 218 228 238 248 258 268 278 288 298
9 19 29 39 49 59 69 79 89 99	109 119 129 139 149 159 169 179 189 199	209 219 229 239 249 259 269 279 289 299
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MINIFINDERS



closed-ended than previous *Zorks*. $44.95. Infocom, 125 CambridgePark Dr., Cambridge, MA 02140. NCP

MUSIC

Apple MIDI Interface is a simple Musical Instrument Digital Interface with a 1 MHZ clock rate. Has only one MIDI input and one output. Works with all Macs; adaptor required for 128K and 512K. $99. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Jun 88)

ConcertWare+ is an enhanced version of *ConcertWare*. Has different instruments and can use any four of a set of eight at any point in a piece. Supports Adobe Sonata music font. $69.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 87) ★'85 Eddy

ConcertWare+MIDI is a composition and transcription program that can record multiple notes from a MIDI keyboard. Easy to use if you read music. Handles 8 tracks of 8 voices each. Requires 512K. Version 4.0. $149.95. Great Wave Software, 5353 Scotts Valley Dr., Scotts Valley, CA 95066. NCP (Dec 87)

Deluxe Music Construction Set lets you enter up to 48 voices on eight staves, and play the music through the Mac's internal speaker and/or via MIDI. Requires 512K+. Mac II and *MultiFinder* hostile. Version 2.0 reviewed. $99.95. Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404. CP (Jun 88)

Jam Factory is a program for performing complex manipulations on MIDI data in real time. Unique, entertaining, and very powerful, but requires lots of patience and practice. Requires 512K+, MIDI interface, and MIDI synthesizer. $189. Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. CP (Oct 87)

Jam Session is a music program for those who think MIDI refers to the length of skirts. Without any skill, you can "Jam" with rock, jazz, rap, or country tunes. A sort of "Sing Along With Mitch" for the computer set. Requires 512K+. $49.95. Broderbund, 17 Paul Drive, San Rafael, CA 94903. CP (Jul 88)

Listen is an educational tool for ear training. It has both a piano keyboard and a guitar fretboard for the student to input notes, and offers a wide range of exercises. $99. Resonate, PO Box 996, Menlo Park, CA 94026. (Jan 87)

M is a music composition and creation program that works with MIDI data in real time. Unique, entertaining, and very powerful, but requires lots of patience and practice. Requires 512K+, MIDI interface, and MIDI synthesizer. $219. Intelligent Computer Music Systems, PO Box 8748, Albany, NY 12208. CP (Oct 87)

Master Tracks Pro is a full-featured, second-generation MIDI sequencer that adheres to the Mac interface very well. It's the first program to have graphic-controller editing. Needs patch chasing for professional use, but it's still a rock-solid program. $350. Passport Designs, 625 Miramontes St., #103, Half Moon Bay, CA 94019. CP (Dec 87)

MIDIBasic is a simple, but highly useful routine for writing MIDI software. Good stuff. Sketchy documentation. Works with both *Microsoft* and *ZBasic*. Requires 512K+ plus Basic. $49.95. Altech Systems, 831 Kings Hwy, Shreveport, LA 71119. NCP (Aug 87)

Music Mouse is a music program in a genre all its own. Called an "intelligent instrument," *Music Mouse* gives you instant musical feedback as you move the mouse and type on the keyboard, which controls tempo, vibrato, volume, etc. $59.95. OpCode Systems, 444 Ramona St., Palo Alto, CA 94301. NCP (May 87)

Performer (v. 2.2) is the definitive MIDI sequencer, and is priced accordingly. Includes looping, SMPTE synching, 32 simultaneous Ins and Outs, unlimited overdubbing, and compatibility with *Professional Composer* for transription. Requires MIDI interface and 512K+. $395. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Jan 88)

Professional Composer produces performance-quality sheet music using Adobe's Sonata font. Scores can be created from scratch or imported from *Performer* (and can be exported to *Performer* for MIDI playback). Requires 512K+. $495. Mark of the Unicorn, 222 Third St., Cambridge, MA 02142. CP (Jan 88)

Studio Session consists of two programs, an Editor, and a Player, that produce music with six voices of digitized sound. Excellent program plus good manual make this a good buy. $89.95. Bogas Productions, PO Box 6699, Terra Lina, CA 94903-0699. NCP (Aug 87) ★'86 Eddy

UpBeat turns the Macintosh into a front panel for a highly complex and versatile drum machine. Input patterns with mouse, MIDI keyboard, or drum machine. Requires 512K. $150. Intelligent Music, PO Box 8748, Albany, NY 12208. CP (May 88)

HARDWARE & ACCESSORIES

AST TurboScan is a 300 dpi scanner with sophisticated graphics software. Scans at resolutions from 72 to 300 dpi. *SuperScan* software offers halftone, line art, and mixed modes. "Virtual memory processing" lets you scan images too large to fit in RAM. $1899. Requires 512K+. *SuperScan* software included. AST Research, 2121 Alton Ave., Irvine, CA 92714. NCP (Nov 87)

Classic Professional Graphics Display is a low-cost color monitor for the Mac II. Good value, but has an IBM-look about it. Green tint is annoying. Requires Apple video card. $549. Classic Components, 1490 Artesia Blvd., Gardena, CA 90247 (Jun 88)

CMS S-140 SCSI Hard Disk is a very fast, high-capacity SCSI hard disk with a unity interleave and average access time of 18 msec. Holds 140M. Help, file transfer, and tape back-up commands built in. *Hard Disk Partition* is a useful DA. Comes with a 6 ft. SCSI cable. $2995. CMS Enhancements, 1372 Valencia Ave., Tustin, CA 92680. (Jul 87)

DASCH is an external RAMdisk available in half, 1, and 2M sizes. Connects to a serial port. Speeds up operations 200 to 300%. Can be used as a printer buffer. Works with all Macs. 512K, $395; 1M, $450; 2M, $545. Western Automation-Laboratories, PO Box 3438, Boulder, CO 80307. (Feb 87)

Data Frame 40XP is a very fast, very quiet 40-meg external SCSI hard drive. Comes with a good and complete set of utility software. About as fast as a SCSI drive can be. Requires SCSI port, 512K+, new ROM. $1899. SuperMac Technology, 295 N. Bernardo Ave., Mountain View, CA 94043.

DaynaFile hooks up to a SCSI drive to read MS-DOS disks in the Mac environment. Use Mac applications to manipulate data created with an IBM PC. Comes in both 5-¼ and 3-½ inch formats. $595 for single floppy. Dayna Communications, 50 S. Main St., 5th Floor, Salt Lake City, UT 84144. (Jan 88) ★'87 Eddy

FX-20 is a good 20-meg external hard drive. Good utility software. Reliable and reasonably quiet. Sits next to Mac, has a large, oddly shaped case. Requires SCSI port, 512K+, new ROM. $1199. General Computer, 215 First St., Cambridge, MA 02142. (Feb 87)

Hard Disk 20SC is Apple's 20-meg SCSI hard disk. Reliable, fairly noisy unit. Good utility software, but no back-up yet. Requires cable and terminator ($80). Requires SCSI port, 512K+, new ROM. $1299. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (Feb 87)

Hewlett-Packard ColorPro Graphics Plotter is an eight-pen desktop plotter that requires third-party software to drive it. Fonts are limited to an optional Graphics Enhancement Cartridge that requires some BASIC programming. $1295. Hewlett-Packard, 16399 W. Bernardo Dr., San Diego, CA 92127. (Feb 88)

MINIFINDERS



ImageMaker shoots 35mm color slides direct from the Mac. Sup-
★★★★ ports most presentation software. Uses patterns to represent colors. Not fully compatible with the Mac II. Requires 512K+. $4995. *MacDriver* software, $149. Presentation Technologies, 743 North Pastoria Ave., Sunnyvale, CA 94086. (Feb 88)

IS/ONE tablet with **Penworks** software lets you use a corded or
★★★½ cordless pen or mouse and a high-res tablet for precise graphics input. Minor bugs with some applications and DAs. Keystroke macros can be launched from the tablet. Minimal documentation. Requires 1M+. $595 to $1145. Kurta, 4610 S. 35th St., Phoenix, AZ 85040. (Jan 88)

Jasmine Direct Drive 50 is a very quiet 1:1 interleave 50 megabyte
★★★★★ hard drive and one of the fastest SCSI drives around. A small fan keeps it cool, but it's still quiet. $1159. Jasmine Technologies, 555 De Haro St., San Fransisco, CA 94107. (Mar 88) ★'87 Eddy

LaserWriter II NT is Apple's mid-priced PostScript laser printer. It's
★★★ faster than the LaserWriter Plus, with blacker blacks. Gray scale is less even than that of Plus. Requires 512K+. $4599. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May 88)

Laser Writer II NTX is Apple's top-of-the-line PostScript laser print-
★★★★½ er. 68020 chip makes it very speedy; expandable to 12M; SCSI hard disk can be attached for fonts. Requires 512K+. $6599. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May 88)

LaserWriter II SC is Apples's low-end QuickDraw laserprinter. Can
★★★ be upgraded to NT or NTX; reasonably fast. Requires 1M+. $2799. Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014. (May 88)

MacADIOS II is a hardware and software interface for laboratory
★★★★ instruments. Standard configuration samples up to 142 kHz. Documentation is sketchy. $1290 for Macintosh II-ready data acuisition card; $600 for MacADIOS II software interface. GW Instruments, 264 Msgr. O'Brien Hwy., Cambridge, MA 02141. (Jul 88)

MacBottom 45 SCSI and Internal Modem has a modem that fits
★★★★½ into the top half of the 45-megabyte SCSI hard-drive case. Comes with *HFS Backup* and *Eureka*. $1795. PCPC, 4710 Eisenhower Blvd., Tampa, FL 33634.(Oct 87)

MacBottom HD21 is a very low (about 2 inches high), external 20-
★★★★★ meg hard drive. Fits under the Mac. Very quiet, very reliable. Good utility software, including *HFS Backup*. Requires SCSI port, 512K+, new ROM. $1195. PCPC, 4710 Eisenhower Blvd., Tampa, FL 33634. (Feb 87) ★'86 Eddy

MacCharlie's components slip around the Mac and convert it into
★★★★ an IBM PC clone. Amazingly, it works well. The enlarged keyboard has a few bugs but is a joy to use. $995. Dayna Communications, 50 S. Main St., Salt Lake City, UT 84144. (Dec 85)

MacIntizer is a graphics tablet and absolute positioning device that
★★★★ replaces the mouse. Various scales are possible. $599. GTCO Corp., 7125 Riverwood Dr., Columbia, MD 21046.

MacLarger is a 12-inch external monitor for 512K machines on up
★★★ to the SE. Displays the same number of pixels as an internal monitor, only one-third larger. Bigger and brighter, but less crisp than the Mac's own screen. $449. Power R, 1606 Dexter Ave. North, Seattle, WA 98109. (Apr 88)

MacPacq transforms the Macintosh into a digital oscilloscope,
★★★ waveform generator, and chart recorder. *PacqManager* software expandable via external routines in *Turbo Pascal* and other languages. Version 1.03 reviewed. $995. Biopac Systems, 42 Aero Camino, Goleta CA 93117. NCP (Jul 88)

MacRecorder is an easy-to-use sound digitizer. Includes software
★★★★½ to turn sounds into *HyperCard* buttons, mix sounds, add special effects, and convert sound formats. Stereo recording possible on a Mac II. Requires 512K+. $199, Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. NCP (Jun 88)

MacSnap Plus 2 is a 2M memory upgrade for the Mac Plus. The
★★★★ board has 256 kilobit chips. User installable. Not compatible with existing big screens or internal hard disks, and can't be expanded further. $399. Dove Computer, 1200 North 23rd St., Wilmington, NC 28405. (Jun 87)

MacTable is an elegant Danish worktable that holds a Mac and
★★★★½ printer with room to spare. The 30-inch deep by 60-inch wide table is made of particleboard and must be assembled. Cabinet is optional. Table, $289; cabinet, $139. ScanCo-Furn, PO Box 3217, Redmond, WA 98073-3217. (Mar 88)

MacTablet is a stylus-driven graphics tablet. Users can easily
★★★★ sketch or trace art using this absolute-positioning device. Has a working area the size of the Mac screen. Allows concurrent use of the mouse. $495. Summagraphics Corp., 777 State St. Extension, Fairfield, CT 06430. (Jan 86)

MacTilt/MacTilt SE is a Mac (and external drive) holder that allows
★★★★ a full range of swiveling and tilting. Very strong, this well-made unit is also very easy-to-use. $99.95. Ergotron, PO Box 17013, Minneapolis, MN 55418.

MacVision is a digitizer that uses an ordinary video camera for
★★★★ input. Capable of extremely fine results and special effects. Easy to use and well-documented. $349.95. Koala, 269 Mt. Hermon Rd., Scotts Valley, CA 95066.

Mac-101 is a keyboard alternative that has a good feel to it. Has a
★★★★ keypad, 15 function keys, and more. The *101-Keys* desk accessory lets you define macros. Comes in an ADB version for the SE and II. Requires 512K+. $169.95. DataDesk International, 7650 Haskell Ave., Van Nuys, CA 91406. Software NCP (Apr 88)

Magic Digitizer is a hardware digitizer that works with video cam-
★★★★ eras. With *LaserMagic* software you can generate 300 dpi images (in PostScript). Requires 512K+. Digitizer with *Magic* software, $399.95; *LaserMagic* software, $49.95. New Image Technology, 10300 Greenbelt Rd., Seabrook, MD 20706. NCP (May 87)

Microtek MSF-300C is a 300-dpi flatbed scanner. Really fast when
★★★½ used with optional MS-SCSI/C adapter. Comes with *VersaScan Plus* software (NCP) to scan and manipulate image. Saves images in a number of formats including TIFF and *MacPaint*. $1895. Microtek Lab, 16901 S. Western Ave., Gardena, CA 90247. (Dec 87)

Migent Pocket Modem is a 300/1200 baud portable modem
★★★½ about the size of a 3 X 5 index card. Comes bundled with *MacTerm* 2.0, Borland's telecom DA. Manual is confusing, and tech support is minimal. $259. Migent, 865 Tahoe Blvd., Incline Village, NV 89450-6062. (Nov 87)

Mouse Mover is a mouse pad-type surface that snaps onto
★★★★½ the bottom of the mouse like a roller skate, freeing it up to glide over desk or mouse pad with ease. 99 tiny ball bearings at three strategic points. Mouse glides faster and saves on mouse wear and tear. $19.95. Magnum Software, 21115 Devonshire St., Chatsworth, CA 91311. ★'85 Eddy

Moustrak is a fabric covered foam mousing pad. It will increase the
★★★★ efficiency of your mouse while helping to keep it clean. Pad comes in a variety of colors. Particularly useful in the typical office desktop environment. $10. Moustrak, 3047 St. Helena Hwy., St. Helena, CA 94574.

NetModem is a 1200-baud modem that can be accessed by all
★★★★ users on an AppleTalk network. The modem's display lights and the dial tone are simulated on screen. Requires 512K+. $599. Shiva, Suite 1200, 222 Third St., Cambridge, MA 02142-9919. (Feb 88)

NoLabelSystem is a plastic permanent labeling system in which
★★★★ users slide new tabs into a transparent plastic case on the disk. The tabs stick out of the case slightly, making them

MINIFINDERS

easier to read while in the drive. $19.45. Weber & Sons, 3468 Hwy. 9, Freehold, NJ 07728.

One Plus One is a user-installable memory upgrade for a Mac Plus. ★★★★½ Adds 1 megabyte of RAM to the 1M already there. Simple one-evening project. Includes MacBreeze, an excellent small fan. Requires Mac Plus. $375. Levco, 6160 Lusk Blvd., San Diego, CA 92121. (Aug 87)

Personal LaserPrinter is a non-PostScript laser printer at a great ★★★★ price. Clumsy workarounds required in some applications. Printing can be slow. Requires 1M+. $1999; Fonts Plus, $299. General Computer, 580 Winter St., Waltham, MA 02154. (Apr 88)

Personal Writer PW15 S is a tablet-based handwriting recognition ★★★★ system that also allows graphics and macros. Number of misread characters is too high for general word processing. Requires 1M+. $895. Personal Writer, 1801 Ave. of the Stars, Los Angeles, CA 90067. Software NCP (Mar 88)

PhoneNET is an AppleTalk-compatible network. Network can be up ★★★★★ to 3000 ft in length. In-place, unused phone cabling can be used for network, and can be combined with AppleTalk on same network. $49 per node. Farallon Computing, 2150 Kittredge St., Berkeley, CA 94704. (Dec 86) ★'87 Eddy

QMS-PS 810 is an 8-page-per-minute, 300-dpi PostScript laser ★★★½ printer that competes with the LaserWriter NT. 2MB of RAM is standard; upgradable to 3MB. Emulates HP LaserJet, 7475 (HPGL), and Diablo 630. $5495. Laser Connection, 7852 Schillinger Park West, Mobile, AL 36608 (Jul 88)

QuickShare adds a SCSI port to an IBM PC for easy connectivity ★★★ with a Mac. Can use an IBM's hard disk to run Mac applications. Requires SCSI port. Mac II and *MultiFinder* friendly. Version 1.24 reviewed. $465. Compatible Systems, P.O. Drawer 17220, Boulder, CO 80308. (Jun 88)

SuperRam 2 and SuperRam 4 are 2- and 4-megabyte RAM up- ★★★½ grades. Should be dealer installed but can be (carefully) user installed. SuperRam 2 includes RAM adaptor module, 1-meg memory module, modified power cable, jumper and fan. SuperRam 4 adds power supply booster and two 1-meg memory modules. Not compatible with most big screens. $499. SuperMac Technology, 295 N. Bernardo, Mountain View, CA 94043. (Oct 87)

ThunderScan replaces the ribbon cartridge in an ImageWriter, ★★★★ which is required to use it. Laser scans art that can be run through the ImageWriter, producing high-quality digitized images. The images can be manipulated as they are created or afterward. $249. Thunderware, 21 Orinda Way, Orinda, CA 94563. ★'85 Eddy

TimeWand is a bar-code reader with a built-in time/date stamp- ★★★★ ing clock. Can be used with *TimeWand Manager* software, a database that's extensive though difficult to use. Poor docs, but good support. Requires 1M+. *TimeWand* 2K version, $198; *TimeWand Manager*, $489. Videx, 1105 NE Circle Blvd., Corvallis, OR 97330-4285. (Dec 87)

TV Producer is an add-in card that overlays Mac graphics and text ★★★ onto a video signal. Software is clumsy to use. Requires Mac II, Apple video card, and video souce. $599. Computer Friends, 14250 NW Science Park Dr., Portland, OR 97229. Software NCP (May 88)



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DUPLICATION 302
EDUCATIONAL 302-303
EMULATION
ENGINEERING 303
ENTERTAINMENT/ GAMES 303
FINANCIAL 303-304
FONTS 304
FORMS PROCESSING
GENERAL
GRAPHICS 304
HEALTH
INVENTORY
LANGUAGE TOOLS 304-305
LEASING 305
LEGAL
MAIL ORDER 305

SOFTWARE *continued*

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MUSIC/MIDI 305
NETWORKING
ONE-OF-A-KIND
PAYROLL 305
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PUBLIC DOMAIN 305
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RELIGION 306
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SALES MARKETING
SCIENTIFIC 306
SECURITY 306
SERVICES
SHAREWARE
STACKWARE 306
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TAXES
TERMINAL EMULATION
TYPESETTING
UTILITIES 307
WORD PROCESSING 307

MISCELLANEOUS

ACCESSORIES 307
BAR CODING
BUSINESS OPPORTUNITIES 307
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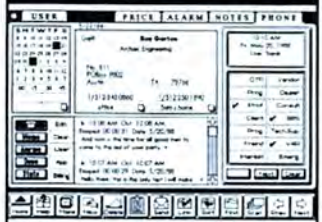
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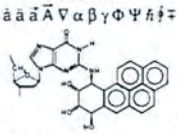
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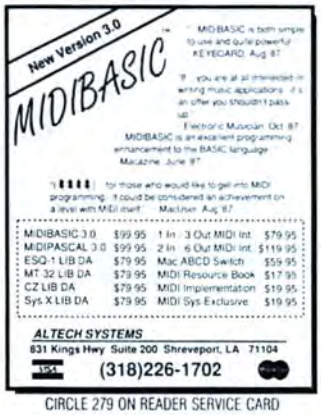
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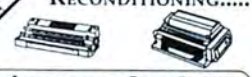
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by John C. Dvorak

The Art of Selling Software

The software industry is great. Where else can you find a business where someone takes a 25-cent diskette, packages it with a 35-cent booklet, puts it in a 45-cent box and sells it for $150, then spends most of their time complaining that they can't make any money? Those were my remarks at a recent Software Publishers Association event. There is something about the software industry that creates these wild profits and outrageous margins and, at the same time, bankrupts companies left and right. Apparently there is more to this than meets the eye. To find out what it was, I interviewed Johnny Babbit, founder of Bogus Software and co-developer of the *Bogus 1-2-3* spreadsheet.

JCD: It's an honor to meet you after all these years. I want to congratulate you for being one of the very successful software entrepreneurs. Few have had your success.

Babbit: It probably has a lot to do with the fact that I'm a lot smarter than they are. Have you seen my collection of cars and airplanes?

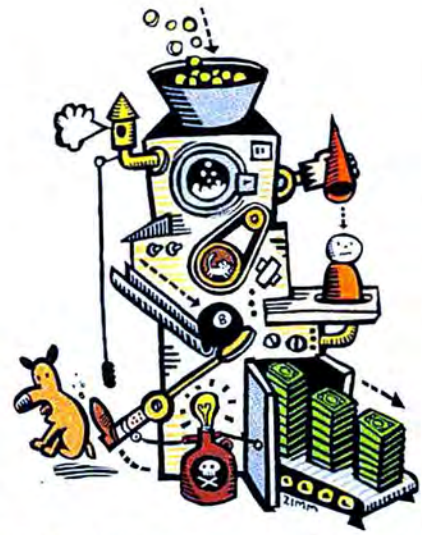
JCD: No, but I'm sure it's something to see. Let me ask about software marketing. How can you take something that costs only pennies to manufacture and turn around and sell it for hundreds and hundreds of dollars?

Babbit: Pretty good deal, huh? First of all, let me correct you. It costs more than a few pennies to make software. We buy a special flax-linen blend cover for the binder we use. Our paper is expensive coated paper, and we use only the finest inks from a small manufacturer in India. The floppies are only the best, and our shrink wrap is an exquisite imported French plastic we get from an exclusive vendor in the southern part of Provence. This all costs money. See this tie I'm wearing? Armani. Quality costs money.

JCD: Yes, but doesn't the buyer just throw away stuff like the shrink wrap?

Babbit: You've got to be kidding.

JCD: Besides that, who cares about all the trimmings? You could print the documentation on newsprint and wrap the disk in it like a fish and it would be just as functional. The user is more concerned about the code on the disk than the box it comes in.



Babbit: I can see that you'll never make a dime in this industry. Better stick to writing! We like to see our buyers as upscale types who like to think they are getting something for their money. Heck, they're spending $400 for a software package. We like to give them something to symbolize their status. Wait until the Gold Edition of *Bogus 1-2-3* is released. Solid gold box. Sells for $30,000. Hot! We'll turn a good profit from that, too. As for your remarks about the code, let's face it — the software buyers are too stupid to think along those lines. Otherwise they'd just buy *MacCalc* and be done with it.

JCD: I'd hardly call them stupid. Perhaps you're overtly suckering them into buying flash rather than substance.

Babbit: Have you seen my jet plane?

JCD: Don't you think it's about time some real value was offered to the hapless computer owner?

Babbit: Grow up. Look, we have 500 employees here at Bogus Software. These people need to eat.

JCD: 500! What do they all do? All you've got are a couple of programs written by a couple of guys. What do you need 500 for?

Babbit: They show up on the books, for one thing. Surely we have to account for and rationalize the outrageous price of the package! Anyway, who cares what they do? They all look good and they compliment each other and kiss up to the bosses. It's great — and it's better than a welfare system. I think of it as socialism for the rich.

We get money from the poor buyer and pass it out amongst ourselves. Does this really offend you? Where did you get that tie, anyway?

JCD: It was a gift. Don't you worry that doing an interview such as this will ruin your reputation, make you seem, well . . . arrogant?

Babbit: I *am* arrogant. So what? Look, customers don't care about me, they care about *Bogus 1-2-3*. They need it, they want it. We've got them captured, they'll pay the ransom money. It's a great business when you do it right.

JCD: Your products seem to be successful only in the IBM arena. Your Mac spreadsheet, *Re-Bop-A-Do,* never caught on.

Babbit: Those Mac buyers are cheap tightwads, that's what I figure. Once the Mac market swings over towards the normal businessman — the guy who knows how to spend his budget to the limit — we'll take over the Mac world. You see, we know the key to all this is being a bird of a feather. Just look at me. Did I tell you about my jet plane? Even Bill Gates doesn't have one. Today's businessman wants a jet, wants to spend money, wants a gold copy of *Bogus 1-2-3*.

That's what makes this country great. Gates is like a Japanese — he thinks about things too much, he's frugal, not a showoff. What kind of attitude is that? If everyone was like him, the country would be like Japan. Take my word for it, Japan is going nowhere fast. They're losers.

That was my encounter with Mr. Babbit. It gave me a better understanding of our fine business and opened my eyes to the simple reality of marketing. He offered me a ride in his new jet, too. He said I should be at the airport at 3:00 to meet him. As I arrived, I saw the jet in the distance. It had left at 2:45. A note was left for me that said, "So long, sucker!"

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